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Advantages of Trees.

We do not know the author of the following beautiful and comprehensive notice of trees, but we think its perusal will cause many of our readers to involuntarily and heartily respond to the familiar and popular language of the song "Woodman spare that tree":—

How beautiful, most beautiful of earth's ornaments, are trees! Waving out on the hills and down in the valleys, in wild wood or orchard, or singly by the wayside, God's spirit and benizon seem to us ever present in trees. For their shade and shelter to man and brute; for the music the winds make among their leaves, and the birds in their branches; for the fruits and flowers they bear to delight the palate and the eye, and the fragrance that goes out and upward from them forever, we are worshipful of trees.

"Under his own vine and fig tree"—what more expressive of rest, independence and lordship in the earth! Well may the Arab reverence in the date-palm a God-given source of sustenance. Dear to the Spaniard is the olive, and to the Hindoo his banyan, wherein dwell the families of man, and the birds of heaven build their nests. Without trees what a desert place would be our earth—naked, parched, and hateful to the eye! Yet how many are thoughtless of the use and beauty of trees. How many strike the ax idly or wantonly at their roots. Above all other things in the landscape we would deal gently with trees. Most beautiful where and as God plants them, but beautiful even as planted by the poorest art of man, trees should be protected and preserved.

If he is a benefactor who causes two blades of grass to grow where one grew before, how much greater his beneficence who plants a tree in some waste place, to shelter and shade, to draw thither song birds, and to bear fruit for man. Plant trees, O man, that hast waste land, and be careful of those that are planted.

Castor Oil Electuary.

Many processes have been devised for disguising the taste and appearance of castor oil. Valuable as this medicine is, many persons' stomachs revolt at taking it in an undisguised form. To overcome this repugnance, to give a concentrated form, and diminish as much as possible the quantity of the medicine, the following excellent formula has been devised by Mr. Septimus Piesse:—Take castor oil, three ounces; Castile soap, one drachm; simple sirup, one drachm; oil of cinnamon, or ottar of rose, six drops. Rub the soap with the sirup in a mortar; when perfectly blended and smooth add very gradually, and with constant trituration, the above ingredients. By these means a gelatinous electuary will be formed, rather palatable than otherwise, and nearly equal, bulk for bulk, to castor oil in strength.

SCOTT'S IMPROVED LOOM.

Fig. 1

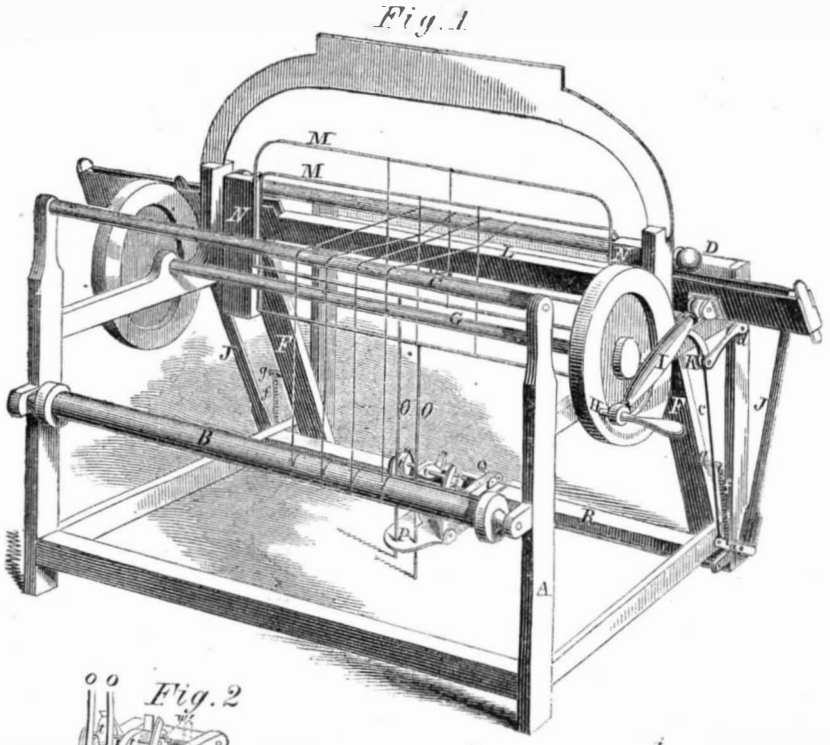
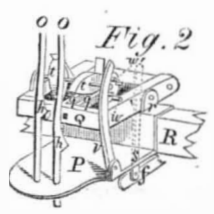
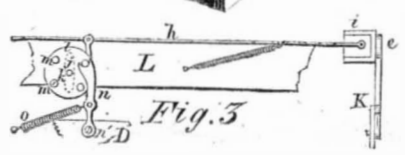


Fig. 2





The loom is about one of the oldest of machines, and to develop the simple framing depicted on Egyptian tombs to the power loom of to-day, has called forth much inventive genius and constructive skill. Still the loom is not perfect, and is yet capable of many improvements, the last, and a valuable one, being the subject of our illustration. It is the invention of E. M. Scott, of Auburn, N. Y., and was patented this week. It provides for the operation of the shuttle motion and harness motion by the movements of the lay, thus dispensing with the cam shaft and treadles, and simplifying the construction of the loom.

Fig. 1 is a perspective view of the improvements, in which A is the frame, B the yarn beam, C the whip roll, D the breast beam, and F L the lay. G is the main shaft, H the cranks for moving the lay, and I the connecting rods, connecting the cranks with the lay, all these parts being exactly the same as in an ordinary power loom. J J are the picker staves, working on pins, *a a*, secured in arms attached to the lower part of D. These staves have arms at their lower ends, connected by rods, *c*, with two levers, K, which work one on each side of the loom on pins, *d d*, secured in the framing, the levers being so situated as to be operated, as the lay swings back, by two rollers, *e e* (seen in Fig. 3), attached to the sole piece. The action of these rollers is to depress the arms of the picker staves, and move the upper ends of the same towards the center of the loom, for the purpose of throwing the shuttles. The picker staves are returned to the outer ends of the shuttle boxes as the lay moves forward, by means of spring, *f* (Fig. 1), connecting their arms with fixed pins, *g*, secured in the framing.

To cause J to be operated only one at a time, the two rollers, *e*, are fitted to a shaft, *h*, which does not rotate, but is fitted to slide horizontally in guides, *i i*, secured to the lay, and these rollers are such a distance apart that when one ranges with its respective lever, K, the other is nearer the center of the loom, and out of the range of its lever; this is effected by the double cam, *j* (Fig. 3), which shows a portion of the lay detached. *j* turns on a pin, *k*, in the sole piece, L, and has fitted to it a plate, *l*, provided with four pins, *m*, one of which, as the lay completes its forward movement, strikes a dog, *n*, and thus causes the cam to be turned one-fourth of a revolution. The dog, *n*, works on a pin, *n'*, in the breast beam, D, and is prevented getting out of an operative position by means of a spring, *o*, also attached to D. M M are the heddle frames working in guides, N N. Each of these heddles has attached to its lower rail a lifting rod, O, which works in guides in a stationary plate, P, attached to a rail, R.

The parts about to be described are separated, and better seen in Fig. 2. Each rod, O, has a notch, *h*, on its front side, and the rods are so bent and formed that the notches are side by side, so that they can be operated by two sliding dogs, *q q*, arranged in a frame, Q, that swings vertically on bearings, *r*, on the rail, R. The swinging motion of the frame, Q, which raises and lowers the heddles is effected by means of a rod, *s*, with an arm, *f*, rigidly secured to the bottom piece of the lay. This connection causes the rear end of the frame which is next the lifting rods, O O, to rise as the lay swings back, and fall as the lay beats up. The dogs, *q q*, are brought into position to operate on the teeth of the rods by the two double cams, *t t*, on a shaft that is fitted to bearings in the rear end of the frame, and which receives a quarter revolution every time that part of the frame descends by the action of a dog, *v*, attached to P, upon one of the pins, *w*, on a plate, *w'*, on the end of the shaft.

The dogs, *q q*, are thrown out to elevate the rods, O, by springs, and are drawn back when it is proper that they should be inoperative by the cams, *t t*. The dogs not only raise the heddles, but also control their lowering, the notch resting on *q* until the heddle arrives at its proper lowest point, where it is retained by stops in N. The dog, *n*, is kept in operation by a spring.

It will be seen from the above description that the invention is also applicable to hand looms, as all the motions are derived from the lay. The invention is valuable, and every weaver will at once appreciate its advantages. The claim will be found on another page.

Any further information can be obtained by addressing A. W. Johnson & Co., of Auburn, N. Y., or W. H. Halladay, their general agent.

The Wonders of Light.

Not only does light fly from the grand "ruler of the day," with a velocity which is a million and a half times greater than the speed of a cannon ball, but it darts from every reflecting surface with a like velocity, and reaches the tender structure of the eye so gently, that, as it falls upon the little curtain of nerves which is there spread to receive it, it imparts the most pleasing sensations, and tells its story of the outer world with a minuteness of detail and a holiness of truth. Philosophers once sought to weigh the sunbeam. They constructed a most delicate balance, and suddenly let in upon it a beam of light: the lever of the balance was so delicately hung that the fluttering of a fly would have disturbed it. Everything prepared, the grave men took their places, and with keen eyes watched the result. The sunbeam that was to decide the experiment had left the sun eight minutes prior, to pass the ordeal. It had flown through ninety-five millions of miles of space in that short measure of time, and it shot upon the balance with unabated velocity. But the lever moved not; and the philosophers were mute.

Arsenic in Cigars.

The *Eclectic Medical Journal*, of Cincinnati, states that Professor Bunsen, of Heidelberg, has had a series of experiments performed in his laboratory by Dr. Reiseg, to demonstrate the possibility of poisoning by introducing arsenic into cigars. It appears from these experiments that about a grain and a half of arsenic may enter the mouth when the cigar has been steeped into a solution of that metal, and the quantity is about one-eighth of a grain when the arsenic is introduced into the cigar in the solid form. That these may be the results of actual experiments, we do not doubt, but as there can be no possible use for introducing arsenic into cigars, either for the purposes of adulteration or improved appearance, we think that the Professor has been dealing with an entirely imaginary evil. Should this be intended as an argument against smoking, it would be better to use only those which are correct, without having recourse to conjuring up fallacious ones wherewith to frighten the innocent smoker.

The Comet.

The long-expected comet of Charles V is beginning to enter an appearance at last. It has been detected in a faint and dim, but this time unmistakable, presence below the horizon, at the Paris Observatory. Professor Donati, of Florence, on the 2d of June last, first discovered it, and prophesied the point from which it will emerge. A deputation of scientific men have been sent by this country, Great Britain and France, to South America; they will meet at the Isthmus, and fix on some point in the Andes from which to make their observations.

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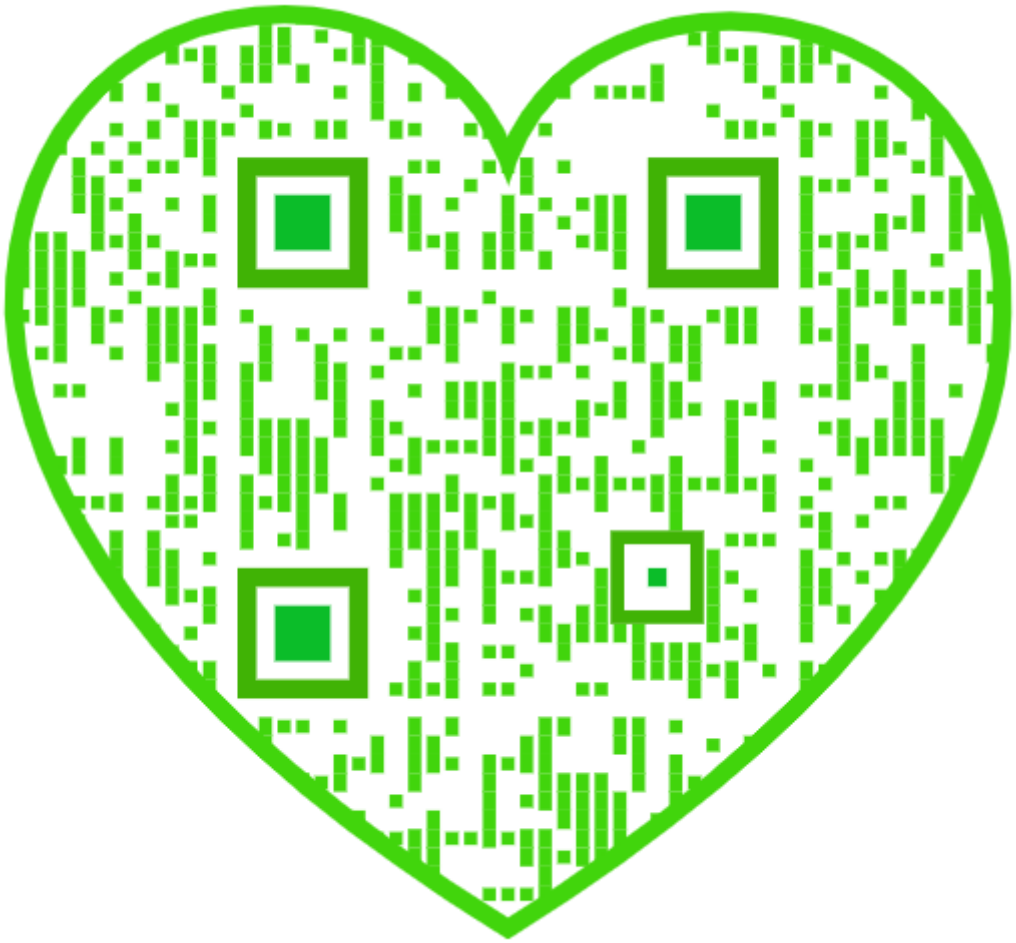

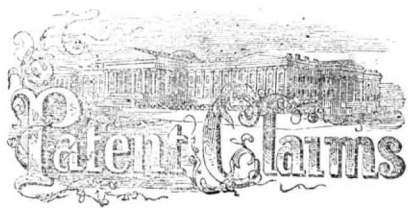

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[*Reported officially for the Scientific American.*]

*** Circulars giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

REVOLVING FIREARM—Ethan Allan, of Worcester, Mass. : I do not mean to be understood as confining myself to any particular angle on that part of the pin, or to the precise form of the guards given.

But first, I claim constructing that part of the pin, C, that projects in front of the cylinder, so as to produce a projecting angle toward the junction of the barrel and chamber that is being discharged, for the purpose set forth.

Second, I claim the guards, D and E, when constructed and operating as described.

HARVESTERS—R. L. Allen, of New York City : I claim, elevating the cutting apparatus and balancing the machine in going over stones, stumps, and other obstructions, and traversing hill sides by means of the long raker and drivers' seat, in combination with lever p, as set forrh.

I also claim constructing the spring axle of three several pieces, clamped and riveted in the manner set forth and for the purpose set forth.

I also claim the position of said axle, F, the same being at right angles with the line of draught, and performing the office of spring and axle, and fastened by bolt, x, as described.

I also claim the form of the socket piece for receiving the ends of the spring standard, to support the rakers' and drivers' seat, Q'.

I also claim the construction of the double shoe and standard, adaptable to the cutting of grain or grass, as set forth, the same being in three pieces, the pieces being put together in a particular way.

I also claim making the shoe under the mortise thick at edge, a, and thinner at a, in order to give greater thickness and strength to the finger board along a a, as set forth.

SEWING MACHINES—B. Atwater, of Berlin, Conn.: I do not claim an arrangement of the guide plates together, and with respect to the bed plate, whereby the loop is bent over a rest or plate, so as to cause its bow to spring upward into a position to receive the needle, as described, such being incident to my machine, as heretofore patented.

But I claim the improved arrangement of the guide plates, J j, with respect to one another, the needle, a, and the bed plate, B, viz., so that there may be a space b, between the bed plate and the upper end of notch of the guide plate, J, and the two guide plates be placed so close together as to hold the middle of the bow of the loop in position, and bridged across the recess of the plate, J, substantially in manner for the reception of the needle by the loop, and to effect advantages as set forth.

HARROWS—David C. Ayres, of Lumberland, N. Y. : I am aware of the use of tubular framework, and therefore do not claim it.

But I claim the combination of tubular piece, B, globular projections, a, cutters, c, and teeth, T, constructed, arranged and operating together as described.

CORN PLANTERS—A. G. Babcock, of Galesburg, Ill. : I claim the arrangement and combination of the entire machine, for the purpose of planting corn.

COAL OR ASHES SIFTERS—Louis D. Bartlett, of Boston, Mass. : I do not claim using a circular sieve on top, and fitting into the vessel to be rotated back and forth, for that is old and well-known.

But I claim using the annular ring and the cover, in combination with the sieve, substantially as described.

JOINTS FOR RAILROAD TRACKS—E. U. Benedict, of Horicon, Wis. : I do not claim, broadly, the placing of a vertical pin or projection upon the bottom of railroad chairs.

But I claim the combination of the ends of the rail, A, with the peculiarly constructed wrought iron T-shaped joint plate, B, by means of the stirrup bolts, c, which pass from the upper surface of the base, b, of the rail, through the said base, and through the lips, a, of the plate, B, and around the lower edge or pan of said plate, substantially as and for the purposes set forth.

[The object of this invention is to prevent the depression of the rails at the junction of the bars, and consequent battering and lamination of the ends of the bars, by the passage of trains over them. The invention consists in a joint plate constructed, applied, and secured to the ends of the bars in a novel mannner.]

WATER CLOSET—George Blanchard, of New York City : I claim the arrangement of the swinging frame, C C, the pedals, A A, the bolt, B B, the seat, J, the two bars, E and F, the platform, D, substantially as described, and for the purpose specified.

HANGING BELLS—George R. Meneely, of West Troy, N. Y. : I claim uniting a bell furnished with horns to a yoke, through the intervention of a cap and clevis bolts, as that said bell may be turned in its yoke, in the manner and for the purpose specified.

OPERATING WINDOW BLINDS—Theodore Christian, of New York City : I claim the coupling the slats together, as described, and connecting a whole panel by means of a rod in the manner and for the purpose set forth, grooving the rod in a straight line.

I also claim taking the bearings of the tenons upon the inside of the channel therein, and beyond the pulley, as and for the purpose specified.

CANE SEAT FOR CHAIRS—John R. Cannon, of New Albany, Ind.: I claim the manufacture of chair bottoms, substantially in the manner and for the purpose specified.

GRATES FOR COAL STOVES—James Easterly, of Albany, N. Y. : I claim the combination of the grate, B, the bar, D, and the clasp, H, or its equivalent, when used and operating in the manner and for the purposes substantially as set forth and made known.

MACHINE FOR RULING PAPER—J. C. Forman, of Cleveland, Ohio : I claim the movable bed, F, operated through the medium of the rack, D, and grooved plate, E, in connection with the gearing, c d C, or its equivalent, as and for the purpose set forth.

I also claim the frisket, G, when arranged as shown, to wit, the frisket being attached to the bar, k, provided with bar, q, and used in connection with the bar, J, on the pen beam, I, for the purpose specified.

[A notice of this improvement will be found on another page.]

PRINTING AND NUMBERING PRESS—George J. Hill, of Buffalo, N. Y. : I claim the combination of a numbering machine, B, and pawl, F, or its equivalent, with a printing press, for the purposes and substantially as set forth.

I also claim the adjustable plate, E, in combination with the numbering machine, B, for the purposes and substantially as described.

CAR SEATS AND COUCHES—R. E. Fowler, of Clayton, N. Y. : I claim, first, Having a shaft, c, extended from one end of the seat to the other, when said shaft is furnished at one end with a crank, E, and at each end with a pinion or friction roller, D, and said pinion or friction rollers work in connection with large spur wheels or large friction rollers, F F, which have the arms, G G, of the back, d, or the arms, H H, of the foot board, c, pivoted eccentrically to them substantially as and for the purposes set forth.

Second, Attaching the arms of the foot board, c, to the lower spur wheel or friction rollers, F F, by means of turning pivots and hinge joints, i and k, in combination with attaching the suspension rods of the foot boards by loose eyes, h, to long staples or brackets, g g, substantially as and for the purposes set forth.

[By this invention one of the occupants of the seat is enabled, by turning a crank at one end of the car seat, to adjust both arms, and consequently the back and foot-boards to any position desired or necessary to form a comfortable sleeping or reclining couch. The adjustment of the seat for sitting and sleeping purposes is accomplished in a few seconds, and with ease and convenience.]

MACHINES FOR DIGGING POTATOES—Nathaniel Gear, of Zanesville, Ohio : I claim in combination with the scoop for digging, the skeleton wheel, K, for gathering, carrying, sifting, and delivering the potatoes into the box or receiver, substantially as described and represented.

CUTTING DEVICE FOR HARVESTERS—C. P. Gronberg, of Montgomery, Ill. : I am aware that concave fingers have been previously used, and also perforated fingers; and I am also aware that various forms of curved metal finger bars have been employed in order to unrite or combine strength and lightness.

I therefore do not claim broadly and separately any of the parts, irrespective of the construction and arrangement shown and described.

I claim the semi-cylindrical finger bar, A, concave and perforated fingers, B, and the sickle formed of the bar, C, and teeth, D, when the above-named parts are constructed, combined and arranged for joint operation substantially as and for the purpose set forth.

[By a peculiar construction of the finger bar and fingers, these parts may be constructed wholly of metal, and still be extremely light and durable, and the sickle prevented from clogging.]

FRUIT BOX—Nicholas Hallock, of Flushing, N. Y.: I claim constructing a fruit box consisting of two sheets of material, one of which forms the body of the box, the other, the bottom, being ventilated as described, and combining therewith the folding handle, substantially as set forth and for the purposes specified.

COFFEE ROASTERS—Theodore Heerman, of Mitchellville, Tenn. : I claim the employment of two reversely inclined concentrating plates, which have a space existing between their approximating ends on the inner circumference of a revolving coffee-roasting cylinder, substantially as and for the purposes set forth.

[With this invention the coffee, as fast as it naturally collects in piles at the heads of the cylinders, is picked up by the radial rib, and dropped upon the angles of the inclined rib, and thereby thrown to the center of the cylinder's length. Thus picking up the coffee at intervals and inducing it to pass to the center of the cylinder, keeps it constantly in motion, both in the path of a vertical circle and in an oblique direction, and every grain is consequently brought in contact with the roasting surface, and a more uniform, effectual and expeditious roasting accomplished.]

WINDOW BLINDS—A. Herder, of New York City : I claim the wire cloth strips, E, attached to the window blind, to form a combined blind and insect bar or net, substantially as set forth.

[A notice of this improvement will be found in an other column.]

MACHINES FOR MOLDING CLAY—Thomas Hoadley, of Cleveland, Ohio : I do not claim broadly the employment or use of rammers operated by wipers or lappets, for such device is well-known and in common use.

But I claim the rotating mold, D, and rods or rammers, O, in connection with the rammer elevating plate, Q, arranged for joint operation as and for the purpose set forth.

I also claim the guides, P P, one or more attached to the shaft, F, and used in connection with the elastic bands, m, on the rammers, for the purpose set forth.

[A notice of this improvement is given in another column.]

CONVERTIBLE CARRIAGE SHAFTS—Amos K. Hoffmeier, of Lancaster, Pa. : I claim first, The combination of the pole hook with its eyes, Q, and points, R, as they fit into the front ends of the shafts which form the pole.

I also claim the arrangement and combination of the shafts, operating on joints, that when closed together form the pole, substantially as described.

MEAT CUTTER—Jacob R. Hoyer, of Reading, Pa. : I am aware that screw knives setting in a spiral position on the periphery of the revolving cylinder, and forming a screw feed, have been heretofore used. I therefore do not claim that part.

But I claim the arrangement of the knives in pairs on the periphery of the revolving cylinder, with their edges radiating from the center of the cylinder, so as to operate the same as shears in passing between the knives of the hollow cylinder, when constructed as and for the purpose set forth.

PLOWS—Samuel Hulbert, of Ogdensburgh, N. Y.: I do not claim any of the parts separately considered.

But I claim the adjustable beam, F, slot, D, pivot C, spring clevis, E, and adjustable handle, G, combined, arranged and operating as set forth and described.

KNEADING MACHINE—William S. Reinert, of Philadelphia, Pa. : I do not claim broadly the employment of a traversing, rotating corrugated roller for kneading purposes.

But I claim the shaft, D, with its corrugated roller E, and pinions, d d, in combination with the guides, f, and pinions, when the whole of the above-named parts are so constructed and arranged in respect to the trough, that they may have an upward or downward movement controlled by the weight, I, or its equivalent, independently of the trough, substantially as and for the purpose set forth.

APPARATUS FOR APPLYING SOLES TO BOOTS AND SHOES—Jacob Jenkins, of Charlestown, Mass. : I claim the combination of the elastic bed, D, and the sole adjusting cavity or space, C, arranged in a press, and so as to operate together substantially as specified.

I also claim constructing such sole adjusting cavity, C, with adjustable sides, a a, or adjustable ends, b b, or both its sides and ends made adjustable, substantially as set forth.

I also claim the combination of the lever clamps, h h, with the adjusting cavity, C, and the elastic bed, and so as to operate therewith substantially as described.

I also claim the combination and arrangement of the tank, B, with the elastic bed, D, and the sole adjusting cavity, C.

ESCAPEMENT OF TIME-KEEPERS—Joseph Jennet, of Meadville, Pa. : I claim the first balance wheel, C, constructed with cogs on its periphery gearing into the pinion, E, and the second balance wheel, D, moved thereby in the manner described, the whole being arranged in the manner and for the purposes set forth.

IRON SAFE—Lewis Lillie, of Troy, N. Y. : I claim the mode of forming the corners of a safe with anchors h h h h, also the jamb, E, as and for the purposes described and set forth.

RAILROAD INDICATOR—Gardner R. Lillibridge, of Wayne co., Mich. : I do not claim the cylinders and scroll or the friction rollers, they being of ancient origin.

But I claim the trap or obscurer, in combination with my peculiar method of exhibiting the number of miles between stations.

I also claim a movable cradle, which contains and confines the cylinder's scroll and friction rollers in combination with the screw for regulating the tension of the scroll, for the purposes specifically set forth.

CULTIVATORS—Israel Long, of Terre Haute, Ind. : I claim the employment of two frames, A A, which are furnished with harrowed teeth, c, at their forward end, and cultivator teeth, B, at their rear ends, and connected by arch braces, D D, in combination with the propelling wheels, E, arranged on short crank axles, c, the tongue, G, arranged on top of the arch braces, and with the adjusting arrangements, substantially as and for the purposes set forth.

MACHINE FOR PRINTING ADDRESSES ON NEWSPAPERS, &c.—James Lord, of Pawtucket, Mass. : I claim, first, Imprinting the name and addresses of subscribers and others on newspapers, envelopes, &c., by inserting type expressing such name and address in boxes secured spirally on the periphery of a revolving cylinder, and causing the said newspape s or envelopes to be successively pressed against the type in the boxes by means of a platen or follower, x, which is made to act in concert with the cylinder, in the manner described.

Second, I claim the combination and arrangement of the connecting rod, z, vibrating lever, p', pawl, r, ratchet, s, and screw shaft, M, for giving the required revolving motion to the printing cylinder, B, and longitudinal motion to the platen, x, and receiving, conducting, and distributing rollers, b h i, in the manner and for the purpose described.

Third, I claim the combination and arrangement of the eccentric cams, u, longitudinal shaft, Y, and upright rod, m, for raising the platen or follower, x, to produce the required impression upon the paper, as described.

Fourth, I claim the combination and arrangement of the cima reversa formed slots, n', in the ears, n, and ends of the branch rods, k', of the curved bars, k, with the distributing and conducting ink rollers, h i, in the manner and for the purpose set forth.

Fifth, I claim the combination of the adjustable plate, d, oscillating bar, c', and plate between which it is secured, and graduating thumb screws, f, with the ink receiving roller, b, as described.

[A notice of this improvement is given in another column.]

APPARATUS FOR PREPARING ELLIPTICAL FRAMES FOR GILDING—Robert J. Marcher, of New York City : I am aware that a bar provided with pins, and fitted in slots or recesses crossing each other at right angles, forms an old and well-known implement termed a "trammel," for drawing ovals, and such implement has been arranged and adapted in various ways for various purposes. But I am not aware that the implement above-named has been arranged as shown, and used in connection with a foot piece or rest.

I do not claim therefore, broadly, and irrespective of construction and arrangement, a trammel, that is to say, a bar provided with pins, which are fitted in cross slots or grooves.

But I claim providing the bar, D, with a foot or support, E, and sliding plate or tool, F, when the bar, D, is arranged relatively with its upright grooved or slotted bar, C, and the frame, B, substantially as and for the purpose shown and described.

[For more information regarding this invention, see another column.]

HOISTING AND DUMPING APPARATUS—George Martz, of Pottsville, Pa. : I claim the combination of the car, hung and controlled in its up and down movements in the peculiar manner specified, with a sliding gate and stationary frame, which are constructed and arranged in the peculiar manner specified, substantially as and for the purposes set forth.

[This invention consists in a car closed in at top and back, pivoted to a sliding gate, and governed in such a manner that its tail-board lies horizontal while the car is being loaded, and its bottom horizontal while the car is being dumped, said car and sliding frame being arranged within a stationary frame, which is furnished with suitable guides for governing its movements and allowing the car to dump, and with a suitable shute, which compels it to tilt and dump a load, and which also holds it in such a condition that while being lowered, its bottom is compelled to stand vertical, and its back lie horizontal when down, and being loaded. By this invention Mr. Martz is enabled to provide a very simple, cheap and compact machine, which is adapted for hoisting dirt out of deep ravines.]

BUTTER WORKER—Ziba Williams, of Ithaca, N. Y.: I claim the combination of a trough and a laddle having parallelism to the axis thereof for the purpose of working butter, when the same are constructed and arranged in the manner described

PADDLE WHEEL PROPELLERS—John May, of Columbus, Ga. : I do not claim to be the original inventor of the propeller or paddle wheel, as described.

But I claim the arrangement of the buckets or floats, B B, with the guides, E E, with the center, F I K, and the frame, C, arranged in the manner substantially and for the purpose as described.

GOVERNOR VALVE FOR STEAM ENGINES—Stuart B. McCray, of Grand Rapids, Mich. : I claim, first, Having a hollow cylindrical valve, B, constructed and arranged to work in suspension over a vertical piston, D, so that it does not come in contact with any horizontal surface, nor has any point of binding contact against said vertical piston, D, substantially as and for the purposes set forth.

Second, The suspending and working of a hollow cylindrical valve, B, by means of an eccentric or other analogous device, L, which said eccentric is so arranged on the shaft of the slotted rocking link that its longest radius is at right angles, or nearly so, with the valve stem, H, when the valve is closed, and its shortest radius parallel, or nearly so, with the link, J, of the governor, substantially as and for the purposes set forth.

[For more information about this invention see another page.]

BINDING ATTACHMENT TO REAPING MACHINES—James Mitchell, of Osceola, Iowa : I claim, first, The combination of the jaws, o o r r, arranged as shown, and attached respectively to the slider, m m, and springs p p, whereby they are made to receive and grasp the ends of the band, as described.

Second, The clamp, J, constructed of two parts, i' j', attached to the rotating wheel, h', and used in connection with the slide bar, K, and ledge, l', for the purpose of twisting the ends of the band, substantially as described.

Third, The jaws, o o r r, clamp, I, band twisting device, J, tucking rod, K, and discharge rod, G, combined arranged to operate substantially as and for the purpose set forth.

[This invention consists in the employment of clamps or band carriers, band twisting device, tacking rod, and discharging device arranged relatively with each other, and operated so that the grain is bound into sheaves and discharged upon the ground, the whole working automatically as the machine moves along.]

COUCHES FOR RAILROAD CARS—F. R. Myers and F. H. Furniss, of Cleveland, Ohio : We claim the couch, P, with the rods, L W N O, and the collars, L' M', or the adjustable collars and springs, R R' S S', as an arrangement of means for providing such number of couches, as in connection with such as may be made of the car seats will accommodate a complement of passengers, substantially as set forth.

CALIPERS AND DIVIDERS—Joseph D. Moon, of Chelsea, Mass. : I claim having the parts, a, of the legs made of circular form, geared or toothed as shown, and the screw, C, placed between them and gearing therein, the above parts being fitted within the socket, B, and the screw provided with nuts, E G, when arranged as described, and for the purpose set forth.

[By this invention the legs of calipers and dividers can be adjusted and secured at any desired point. It consists in having the ends of the legs which surround the pivots made circular and concentric with the pivots, and having said circular portions, together with a screw, fitted between them, by turning which the legs are operated or moved. The above parts are placed within a suitable socket, and the screw provided with a jam nut, to prevent the casual movement of the same.]

RAKING ATTACHMENT TO HARVESTERS—John Nelson, of Rockford, Ill. ; I claim the arrangement of the arm, I, and rake connected by an articulating joint at J, the spring, O, and cord, N, in combination with the guide, Q, operating conjointly in the manner and for the purpose set forth.

SCYTHE BLADES—Samuel D. Nelson, of Pittsburgh, Pa. : I claim constructing grass and cradle scythes by starting the web of the scythe from one edge of the back, making the back concave on the upper, and convexed on the lower side, leaving the heaviest and thickest part of back on the center, and to the outside of the convexed side of the back, thereby making the scythe stiffer and stronger, as described and represented.

HARROWS—Samuel J. Orange and George Bridelman, of Grayville, Ill. : We claim the combination of the handles, or their equivalent, with the transverse beams, D D, and rollers, E E, and the circular frame, A, substantially as described, by which we are enabled, by regulating the pressure on the handles, to guide the harrow in the line of the draft or deflect it, at pleasure.

SEED PLANTERS—Benjamin Owen, of Dayton, Ohio : I am aware that covering hoes, T, have been previously used, and arranged to rise and fall as shown, and I therefore do not claim broadly such device, irrespective of the particular means employed for operating it.

Neither do I claim separately and irrespective of the means of operation, a reciprocating seed slide.

I claim operating the arms, S, and hoe, T, by means of the disks, N R Q, provided with teeth or spurs, and arranged as and for the purpose set forth.

[This invention consists in a peculiar seed-distributing device and a covering device, whereby the seed may be diffused in hills at equal distances apart, and covered with a proper quantity of earth by a very simple arrangement of means. The device is more especially adapted for planting maize or Indian corn, but it may be used for planting other kinds of seed in hills.]

OPERATING VALVES OF STEAM ENGINES—H. Uhey and H. A. Luttgens, of Paterson, N. J. : We do not claim the connection of the differential rocker, G, with the link motion or substitute, as this device is secured by us in a patent dated March 20, 1855.

But we claim the cam, B4, or equivalent, in combination with the valve gear, adapted to operate a single slide valve, substantially as described.

PORTABLE COPYING APPARATUS—Wm. Van Anden, of Poughkeepsie, N. Y. : I claim the improved method of uniting a cylindrical removable back or holder with a copying book by means of a concave or tubular channel cut longitudinally with the face of the cylindrical back or holder, for the purposes and substantially in the manner set forth.

MACHINE FOR TURNING HUBS—Alexander Rickart, of Schoharie, N. Y. : I claim rotating the mandrel, R, of the carriage, D, from the cutter shaft, B, through the medium of the worm wheel and screw gearing, f h i n, as described, it being understood that I do not claim broadly, and in the abstract the well-known mechanical device of a worm wheel and screw gearing, but the parts above-named, when arranged with the cutter shaft, B, and mandrel, K, of the carriage, D, so that the mandrel, K, will be connected with the shaft, B, and disconnected therefrom at the proper time, by the movement of the carriage, D, for the purpose described,

[A full description of this invention will be found on another page.]

BILLIARD BALLS—Calvin B., John, and William C. Rogers, of Deep River, Conn.: We do not claim simply the cementing of a series of pieces of ivory together, and turning the same to form a billiard ball, irrespective of the disposition and arrangement of said pieces in respect to each other, as described, for various articles are formed in sections, or of a series of pieces joined together, and turned or otherwise formed into proper shape.

But we claim constructing billiard balls of a series of pieces, a a b, three or more cemented, or otherwise secured together, when said pieces are disposed or arranged in relation to each other in respect to their ber or grain, as set forth.

[These billiard balls are constructed in sections, or of a series of pieces, cemented or otherwise secured together, and disposed or arranged relatively with each other in a novel way, in respect to their fiber, whereby several important advantages are obtained.]

COAL STOVES—Silas T. Savage, of Albany, N. Y. : I do not claim a magazine or feeder, nor radiator, nor the introduction of air to complete the combustion of the fuel.

But I claim the combination of the magazine, radiators, and the air chamber at the base of the radiators, as arranged in reference to and with each other, substantially as set forth and described in the specification.

COAL STOVES—S. T. Savage, of Albany, N. Y. : I claim the combination of an open cylindrical or basket grate, with a dome, or a cone-shaped cover placed within an outer chamber, having a register for the admission and regulation of a current of air between the grate and the walls of said chamber, arranged near the bottom of the chamber, substantially as the same is described and for the purposes set forth in the specification.

CONSTRUCTION OF COAL STOVE LINING—S. T. Savage, of Albany, N. Y. : I claim the employment of metallic framing to contain fire-clay or other lining for coal stoves, for the purpose of preserving it from injury by adhesion of clinkers, constructed substantially as described in the specification.

LOOMS—E. M. Scott, of Auburn, N. Y. : I claim first, Operating the shuttle motion by means of the lay, in the manner and for the purpose described.

Second, The combination of the sliding shaft, h, attached to the lay, the rollers, e e, or their equivalents, on said shaft, the cam, l, and its appendages attached to the lay for giving longitudinal motion to the shaft, and the dog, n, attached to the breast beam to operate the cam, the whole applied and operating substantially as described, to actuate the shuttle motion at one side of the loom only at a time by the movement of the lay.

Third, Operating the harness motion by means of the lay in the manner and for the purpose specified.

Fourth, The combination of the swinging frame, Q, and its dogs, q q, cams, t t, and turning plate, w', with the lifting rods, o o, below the headle frames, the dog, v, and the lay, the whole operating substantially as set forth to cause the headles to be operated alternately or in proper order of succession.

[A full description and engraving of this invention appears on another page.]

HOSE CARRIAGE—I. S. Schuyler and L. A. Rockwell, of New York City : We claim, first, The arrangement

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and combination of two separate and independent rope reels respectively and separately with the bearing wheels rotating on the axle tree to which the reels are secured. substantially as described and for the purposes as set forth.

Second, The described method of connecting and disconnecting the rope reels, with the bearing wheels of a fire engine, hose cart, or other fire apparatus, for the purpose of taking in the drag rope while the apparatus is drawn by it.

MACHINE FOR IRONING CLOTHES—John Shaefer, of Lancaster, Pa. : I claim the combination and arrangement of the hollow cylinder, G, with the rollers. J J, the screws and caps, 1 2 and 3. the spigot, 4, the screw plug, g ; the screw, E, the tables, K, all secured in the frame, A and B, and operated by the crank and gear wheels, substantially as and for the purposes specified.

CARPET SWEEPER—Reuben Shaler, of Madison, Ct. : I claim, first, The combination in a machine for sweeping carpets of a brush, the bristles of which are set at angle of about forty-five degrees from a radial line passing directly outward from axis constructed substantially as described with a traction roller, substantially as and for the purposes set forth.

Second, The construction of the traction roller of a sweeping machine in the manner described, that is to say. by winding a spiral flange of india rubber or other flexible and adhesive substance around a cylinder as set forth, by which a very powerful adhesive traction of said roller is insured, and the roller is much more cheaply manufactured than an equally efficient one could otherwise be.

SEEDING MACHINES—Samuel Stanbro. of Salem, Mich : I claim the application of a twisted cord, in combination with measuring tubes, arranged substantially as describe l, for the purpose of measuring and delivering the seed.

METHOD OF MANUFACTURING SHINGLES FROM THE LOG—C. L. Story, of Owensboro, Ky. : I am aware that circular saws, rotary cutters, and traveling carriages have been used and arranged in many ways for sawing various articles, and I do not claim, broadly, the use of such parts irrespective of their arrangement as shown.

I claim the circular saw, C, rotary and laterally moving cutters, h h i, the rotary cutters, a a, and traveling carriage, I, arranged and combined as shown, whereby the shingles are cut from the bolt, tapered and jointed at one operation.

I also claim the particular means described for rotating the bolt, M, at each termination of the movement of carriage, I, and thereby setting the bolr to the saw, to wit, the screw, n', worm-wheel, m', actuated through the medium of the arm, o', rod, p', bar, q', rod r', and guide ledge, P.

[This is an improvement in that class of shingle machines in which circular saws are employed for cutting the shingles from the bolt or log. The invention consists in the employment of a circular saw and rotary cutters, arranged and used in connection with a traveling carriage, whereby shingles may be sawed directly from bolts cut from the log ; the shingles being properly tapered and adjusted, while being sawed from the bolt, so as to leave the machine in a finished state.]

TRAP FOR ANIMALS—R. M. Turner, of Woodland, Mich. : I am aware that tilting plattorms have been previously used and arranged in various ways to form self-acting traps ; I therefore do not claim separately and broadly such device,

But I claim the tilting platform, B, and treadle, C, connected with the spring catch, g, the platform being placed within the base, A, and the platform and treadle, arranged in relation with the box, E, and bait chamber, j', substantially as and for the purpose set forth.

[This invention consists in the use of a pivoted or swinging platform, with spring treadle attached, to which a catch or fastening is connected that sustains the platform in a proper horizontal position, these parts being placed in a suitable case and arranged in such relation to a bait-box, that a rat in attempting to reach the bait will depress the treadle and catch, the platform consequently tilting by the rat's own weight, and turning the animal into a tub or butt of water over which the trap is placed.

ALARM LOCKS—J. W. Wells, of Pittsburg, Pa. : I claim the use and combination of a bell catch, in the keeper of a lock and a spring catch in the locking bolt, so arranged, as before described, to set the alarm by simply locking the door, and to spring the alarm, and ring a bell whenever the door is unlocked, substantially in the manner set forth.

BRICK MACHINES—Henry White, of Cleveland, Ohio: I claim, first, The beveled joints of the mold, as arranged and for the purpose specified.

I also claim the mechanism as described when relatively arranged and combined in its several parts as set forth and for the purposes specified.

METHOD OF ALLOWING FOR EXPANSION AND CONTRACTION OF FENCES—Olly Williams, of St. Louis, Mo.: I do not claim, broadly, the tightening of the wires by means of a weight.

But I claim the combination of the shaft, B, with the post, A, and the application of the wires to the said shaft, whereby all the wires are tightened at one and the same time, by one and the same weight, substantially in the manner set forth.

SEWING MACHINES—J. B. Woodruff, of Washington, D. C.: I claim, first, the double corrugated yielding spring, between which the thread is guided, the same being regulated by a thumbscrew, or any equivalent device, to bear upon the thread in the manner described to produce any degree of tension required.

Second, I claim making the bowl or shuttle carrier, and attaching it to the slotted driver, as described, in combination with the circular shuttle race.

Third, I claim the application of extension rods for pitmans to sewing machines, when used in combination with a hinged foot piece to be placed upon the floor, and the machine upon a table, in the manner and for the purpose specified.

LIFEBOAT CONSTRUCTED OF MATTRESSES—Jabez M. Woodward, of New York City: I claim, first. Constructing the mattresses with the strong canvas or duck attached to them with the eyelet holes, so that they can be united at their edges by lashing for the purpose of making a boat or life raft, as described.

Second, I claim the manner of constructing the berth bottoms or supports into frames in the shape of or similar to right-angled triangles in combination with the mattresses. constructed as described.

Third, The combination of the mattresses, canvas and eyelets, with the lashings, diaphragm frames and spar, arranged into the form of a boat, or life raft, as described.

STAMPING MILK CANS—Wm. Mt. Storm (assignor to Allan Cummings), of New York City: I claim the press with the counterpart die-bearers, forming segments of two concentric circles to fit the exterior and interior of the "breast" of a narrow mouthed can, and having the movable S-shaped head block carrying the follower by guide rods, as shown, on the one part of a die-bearer, while the counterpart die-bearer is provided with rods with hands that pass through holes provided in the can to catch upon the head block, the whole being so constructed that two parts of the press may be combined and operated through the thickness of the can to perform its office, and thereafter be readily separated and removed, substantially as described, the purpose being to facilite the marking of such cans after construction is completed.

[See another column.]

SEWING MACHINES—M. L. Clinton (assignor to H. F. Hibbard), of Ithaca, N. Y. : I claim the cams, B and C. on shaft, A. in combination with spring hook, D, constructed and operated substantially in the manner and for the purpose described.

BULLET MACHINE—C. Young, of Auburn, N. Y. : I claim; first, The application of elastic rolls, for the purpose of feeding lead wire into the machine, substantially as described.

Second. The application of the arrangement or device for gaging, cutting and depositing the lead into the dies by the same instrument, and the manner of constructing and operating this portion of the machine, substantially as described.

Third, The application of the arrangement, or device of laterel punches, for removing the bullet from the dies, substantially as described.

The above is a full description of improvements in the mode of constructing machines for the manufacture of bullets from cold lead by pressure, in respect to which a caveat was filed, by said Calvin Young, in the month of April, 1857, in the secret archives of the Patent Office.

MANUFACTURE OF BRUSHES—Stephan Barnes (assignor to himself, Henry S. Parsons and Saml. Rowland), of New Haven : I do not claim to be the first to secure bristles in a clamp, or its equivalent, while their tops are cemented together, for this has already been done.

But I claim the securing of the bristles in separate tufts in the manner described, by the employment of the tubular block, A, or its equivalent, substantially as set forth.

SEWING MACHINES—S. C. Blodgett, (assignor to G. B. Sloat & Co.), of Philadelphia, Pa. : I lay no claim to a shuttle, a needle and mechanism for operating them in such manner and while they carry separate threads, as either to cause the shuttle carrying one thread to pass through a loop of thread, formed and held in cloth or other material by the needle, or to cause the loop of the needle thread to be seized by a hook, and cast around the shuttle in such manner as to carry the thread through the loop, as I am aware that such is not new.

Nor do I claim the application of the hook to the bobbin in such manner that such hook shall revolve in a circular path, concentric with the axis of the bobbin, and be turned over or reversed in position, so that it shall be caused to point upward and downward while making each entire revolution.

But I claim my improved mode of operating the hook about the bobbin, viz., with a compound motion produced by a crank, i, and an arm, p, or by two cranks, whereby the point of the hook is made to travel either in an elliptical or a circular path, without being reversed or made to point upward and downward during its rotation. Also, the particular mode above described of constructing the hook, viz., so that not only the heel part thereof shall lap over the edge of the bobbin, but the point of the said hook extend obliquely in manner as described, or toward the needle, and so as to operate therewith as explained, and making the said hook with an auxiliary hook or notch, z, the same being to operate together as specified.

FLUES OF ELEVATED OVEN COOKING STOVES—James Easterly (assignor to himself and D. G. Littlefield,) of Albany, N. Y. : I do not claim the dividing of the flue of the stove for conveying the products of combustion to separate flues placed at each end of an elevated oven or to the exit flue by a center passage : neither do I claim an elevated oven having a descending flue, with its flue space from end to end of the oven an open chamber,

But I claim combining with flues, D D, and a center passage arranged substantially as described within the stove an elevated oven, having its flue space, on its sides and top an open chamber, in connection with a descending flue, with its exit at the base, the whole arranged and operating substantially as described and made known.

STEAM PRESSURE AND WATER INDICATOR—Wm. C. Grimes (assignor to David Matthew), of Philadelphia, Pa. : I do not claim the mercury cup, containing mercury, nor the glass tube embodied in the leg of the siphon, and showing only the rise and fall of the mercury by single end of the mercury column in single tube, as this has been done before, and I do not wish to be understood as claiming any such device.

But I claim constructing and arranging the concentric glass tubes with the connecting pipes, as and for the purpose set forth. Also, the manner of constructing and arranging the connecting pipes with the boiler and the branch or equilibrium pipe between the concentric connecting pipes at the water line of the boiler, as and for the purpose set forth.

COUCH SEATS FOR RAILROAD CARS—John Hartman, Jr. (assignor to John Hartman, Sr.). of Philadelphia, Pa. : I am aware that car seats have been made before so as to be isolated from each other, and to swivel round upon their bases. I am also aware that the back has been made adjustable to various angles of inclination to a horizontally fixed seat, and also that an office couch chair has been made with a foot rest and back, so connected together and to a fixed horizontal seat as to move in unison to any required angle of inclination to the said horizontally fixed seat, by the occupant simply changing his position thereon, but neither of these have been constructed in such a manner as that the seat proper can be inclined into the same plane with an inclined foot-rest frame, so as to adapt them as couches to the requirements of a railroad car, as described. I therefore do not claim, broadly, a swiveling seat with an adjustable back and foot rest.

But what I claim in adjustable, backed, reversible couch seats is the combination and arrangement of devices, whereby the seat proper, B, can, at the pleasure of the operator, be arranged and securely maintained either in the horizontal position of a chair seat as shown in Fig. 1, or in the same plane with the inclined position of the foot-rest frame, E, as a couch, or as shown in Fig. 2, the same consisting of a pedestal, A, seat, B, stem, f, brace, h and foot-rest frame, E, or their equivalents combined, and arranged so as to operate substantially in the manner described.

DIAPHRAGM FOR PHOTOGRAPHIC CAMERAS—C. C. Harson and J. Schnitzer (assignors to C. C. Harrison), of New York City ; We claim the adjustable diaphragm or stop described, composed of overlapping plates operated concentrically by the ring, D. or its equivalent, said ring being operated from the outside of the tube by means of the lever or arm, E, or other appropriate device, substantially as described for the purposes set forth.

RAILROAD CHAIRS—Adam Hay (assignor to himself, S. W. Miller, and L. B. Miller), of Newark, N. J. : I claim. first, The lip or projection, C, formed and adapted substantially as represented, to support the flange of the rail, and in turn to be supported by the upper portion of the wedge.

Second, I claim a chair having an aperture for the wedge substantially as described, which will in itself contain and secure the wedge, and yet leave it free to support the flange perpendicularly, and to bind the rail laterally, substantially as described.

Third, I claim the combination of the lip, C, with the flange of the rail, and the wedge, B ; in other words, I claim the support of the flange by the lip, and the supports of the lip by the wedge, affording a firm rest for the flange, at the same time preventing, by this combination of wood and iron, all vibration and jar.

Fourth, I claim the combination on the chair of the wooden plug, e, and the screw, D, in the manner and for the purpose described.

STEAM TRAP—J. W. Hoard (assignor to himself and G. B. Wiggin), of Providence, R. I. : I make no claim to any of the parts separately.

But I claim the combination with the outer case or chamber, A, of the valve, B, lever, O, diaphragm, F, mercury holder, G, and openings, I and C, constructed and operating as described for the purpose set forth.

JOURNAL BOXES—H. H. Thayer, of Sandwich, Mass., assignor to J. A. Woodbury and S. A. Woods, of Boston, Mass. : I claim the combination of two or any other suitable number of lubricating chambers, a a, and bearing surfaces, g g, with one trough or channel arranged below them as specified.

I also claim the combination of the intercepting chamber, d, at each end of the box, with the oil trough, d, the lubricator chambers, a a, and the bearing surfaces, g g.

I also claim making the opening of the chamber, d, of greater diameter than the journal in manner and for the purpose as specified,

And in combination with the intercepting chamber, d, I claim the intercepting groove, f, arranged in the cap, B, in the manner and for the purpose specified.

RE-ISSUES.

SIDEWALK PAVEMENTS—John B. Cornell, of New York City. Dated April 28, 1857 : I claim giving such a shape to the described street gutter section, p, that its under surface will securely embrace the top of the wall, d, whilst its upper surface at the same time forms a portion of the street gutter, and also a firm supporting base for a section, c, of street curbing, or its equivalent, substantially as represented and set forth.

I also claim forming a sidewalk pavement of a series of metallic plates, a a, when the said plates are combined with or form portions of sections of metallic street-curbing substantially as set forth.

TRAP FOR CATCHING FLIES—Joel B. Fuller and George W. Pierce, of Worcester, Mass. : We claim the combination of the wheel or cylinder, having a rotatory motion with the box or case, for the purposes forth.

DESIGNS.

COOK'S OVEN STOVE—William W. Stevens, of Westbrook, Me., assignor to Nathaniel P. Richardson & Co., of Portland, Me.

STOVES—Nathaniel P. Richardson, of Portland, Me.

Recent Patented Improvements.

UPSETTING VISE.—With this invention, the anvil plates adjust themselves to the curvatures, whether great or slight, of the tire, the guide is adjustable to suit the different thicknesses and curvatures of the same and the clamps can be brought instantly into action and as quickly thrown automatically out of action. It is the invention of E. J. Dodge, of Port Washington, Wis., and was recently patented.

OSCILLATING STEAM ENGINES.—With this invention the valve is perfectly balanced and the necessity of using a set screw to keep the valve in proper position avoided ; the steam itself being made to perform both these functions, and thus the easy working of the valve secured, and freedom for expansion and contraction allowed. This invention also allows of the the engine being instantly and completely reversed by simply shifting the valve, the valve when shifted presenting a full, open port. The shifting of the valve is rendered very easy, owing to the valve being balanced, as before stated.

We regard this as an excellent arrangement and think it will go far towards rendering more perfect the operation of oscillating and other engines. It was invented and patented by G. Rieseck, of Pittsburgh, Pa.

WINDOW SASH BALANCE.—The window sash balance patented to Ross Johnson, Esq. of Frederick, Md., August 10, 1858, is a very simple and perfect arrangement, it avoiding the necestity of having the ordinary end boxes for the weights and cords, and being applicable to all old windows now in use. The invention consists in constructing narrow boxes on the jambs at right angles to, and forward of, the window sash and using flat weights with cords passing over pulleys which have their axes at right angles to the edges of the sash. The improvement is very simple and cheap and presents a very neat appearance when applied, and affords all the convenience of the most complete and expensive box frame balance sash.

The following inventions have been patented this week, as will be found by referring to our List of Claims :—

MACHINE FOR ADDRESSING NEWSPAPERS. James Lord, of Pawtucket, Mass., has produced a most ingenious machine for the purpose of saving much labor in a newspaper office, by directing the wrappers in which the papers are mailed to subscribers. To the periphery of a cylinder a number of boxes are secured spirally, in which boxes are arranged types to print the subscribers' names. One subscriber's name and address is in each box and when combined with ink rollers and a proper bed, by moving certain mechanism, and supplying the wrappers as the cylinder is rotated, it prints the names upon the wrappers quickly and plainly, with much greater facility than by hand, as at present. Each cylinder can be made to contain ten thousand names, so that when this number has been printed from one cylinder, it will have to be replaced by a new one. This will be a very valuable machine for our daily papers, where many copies have to be mailed in a few hours.

METHOD OF MARKING MILK CANS.—Much of the milk used in cities is conveyed from the country producers to the city dealers, by railroad, and the empty cans are returned by the same conveyance, and as in every train or every car conveying milk, there will be cans belonging to several owners, it is necessary that each can be marked in a conspicuous manner, with the names or initials of the owner. The common method is to apply on the breast of the can, letters of sheet brass, which are attached by soldering ; but the cans are frequently stolen and their identification prevented by the removal of those letters. To prevent this and other frauds, William Montgomery Storm, of New York, has devised a small portable press which stamps the letters, by dies, in the breast of the can itself and he attaches the trade mark through a hole in the can, making it part of the can and extremely difficult to remove.

PAPER RULING MACHINE.—J. C. Foreman, of Cleveland, Ohio, has invented a new machine for ruling paper with variable lines, bounded by curved or semicircular ends, forming borders for cards, checks, bill heads and the like. The invention consists in giving to the bed on which the paper is placed, a movement below the press corresponding to the form of the borders to be ruled, so that the desired lines will be drawn upon the paper ; the bed having a frisket attached and so arranged that the paper may be readily shifted on the bed and the machine manipulated with facility.

GOVERNOR VALVE.—This invention allows of the piston valve being hung in suspension, and properly balanced, and thus worked without any loss of power and of being opened with a quick motion at the start, and with a gradually decreasing speed as the governor balls continue their descent. Having the valve open quickly at the start is essential in order to meet with nearly a full head of steam the check to the engine caused by the load brought to bear upon it. We regard this as a most excellent arrangement, as it is exceedingly simple and complete in its working. It is the invention of L. B. Mc.Cray, of Grand Rapids, Mich.

MACHINE FOR PREPARING PICTURE-FRAMES.—Robert J. Mascher, of New York, has invented a machine for this purpose which consists in a peculiar arrangement and adaptation of well-known trammels for the purpose of giving a positive or arbitrary eliptical movement to a tool, this movement corresponding with the shape of the frame to be operated upon, so that the tool may traverse over the frame and properly distribute the composition that receives the gold leaf, upon it.

BLIND AND INSECT NET.—This invention consists in attaching a series of wire cloth strips to the blind in such a manner as not to interfere in the least with the opening and closing of the slats, and at the same time effectually close the spaces between them so as to prevent insects from passing between the slats. The inventor is A. Herder, of New York City.

MACHINE FOR MOULDING CLAY RETORTS.—The object of this invention is to so mold the clay that it will be of equal density throughout each part or portion of it, as the process of molding is carried on, being subjected to an equal ramming, so that when the articles are molded they will be perfectly free from air-cells, more compact than usual, and consequently more durable and less liable to break on account of porosity, and also less liable to fracture in baking, as the shrinkage will be nearly equal or uniform on account of equal or uniform density, and as there are no air cells, fracture cannot occur by the expansion of the same. The inventor is Thomas Hoadley, of Cleveland, Ohio.

HUB TURNING MACHINE.—This is an improvemeut in a hub-turning machine patented by the inventor, Alexander Rickart, of Schoharie, N. Y., July 1, 1857. The object of the invention is to obtain by far simpler means the same results that are obtained by the first patented machine, and also to add an automatical device for cutting off the ends or superfluous parts of the hub.

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New Inventions.

Car Seats and Sleeping Couches.

A patent was issued to Eli Wheeler, of Union, N. Y., on the 3d of last month, for an improvement in railroad car seats, capable of being readily converted into comfortable sleeping couches, which, while it insures to passengers a comfortable seat, enables them, with the least possible trouble, to enjoy the eagerly-sought-for repose of sleep, on horizoutal couches so enclosed as to somewhat resemble state-rooms.

The sides of the car, on each side of the longitudinal passage way through its center, are divided by partitions six feet apart, one half of which partitions may be let down, or slided into the other parts so as to give a more open appearance in the day time, and which may be restored to their former position when desired at night. Along the sides of these partitions are arranged the seats, facing each other, each apartment furnishing seats for four persons, capable of being converted in a moment's time into comfortable berths and couches for the same number, each with its complement of blankets, pillows and mattresses, which are contained in convenient receptacles. A free circulation of air is permitted, both above and below the berths, as well as on each side, and it is intended to place the car in charge of some suitable person whose sole business will be to wait upon passengers, and see that it is kept scrupulously clean, well warmed and ventilated. What commends this improvement more particularly to favor is its extreme simplicity, there not being a hinge or sliding bolt about it, or in fact any part liable to get out of order, and any passenger can as readily convert the seats into couches, and *vice versa*, as to turn over the backs of the present seats, and by a similar process.

As an evidence of the great favor with which it has already been received among the best qualified to judge, we are informed that arrangements have already been entered into with some of the principal railroad managers to introduce these cars as soon as possible on their roads. Among other testimonials, we have seen a very flattering certificate commendatory of the simplicity, efficiency and adaptability to the purpose of the design, of this arrangement of convertible car seats and couches, from Eaton, Gilbert & Co., the celebrated car builders of Troy, who, we understand are now engaged in completing four cars upon this plan for the New York Central Railroad Co.

Improved Wet Fuel Furnace.

In the use of waste and refuse carbonaceous matter for fuel, it is quite a new idea to produce such a heat in the furnace or fire chamber as shall decompose the water and make its gases also available as heating matertal, and for the first time a furnace has been constructed on these principles by Gideon Bantz, of Frederick City, Md. Our engravings fully illustrate the invention, Fig. 1 being a longitudinal vertical section of the furnace, showing its application to a steam boiler, and Fig. 2 being a transverse vertical section through the fire chambers.

A A are two arched fire chambers arranged side by side and furnished with bars, *a a*, beneath which are the ashpits, B B. These fire chambers are not placed below the boiler, H, but directly in front and parallel with it. They may, however, be placed at one side of the boiler, and at any angle to it. Each is provided with a door, *b*, but these are only used for lighting the fires, and the ashpits, B, have doors, *c*, to regulate the supply of air through the grates, and permit of the removal of the ashes. On the top of each chamber are feeders, *d d*, for supplying the fuel. The chambers, A. are covered with a flat floor built over the arches that the fuel may be wheeled to the feeders. At the rear end of each fire chamber, there is a throat-like aperture, *e*, communicating with a reservoir, C, that is built of brick lined with firebrick under the front of the boiler, and which has a concave bottom, *m*, and a convex back, *n*. By having the throat this shape, it is not partially closed up as it would be if the plate was straight and set inclined and, beside this the heated products of combustion are made to hug the bottom of the boiler, and as the draft is at this point, the perfect combustion of partially ignited gases is insured. The convex back of the reservoir terminates in and serves as a bridge wall, *f*, and has a concave top so formed as to leave a space, *o*, of but three or four inches between it and the boiler. In the rear of *f* are a series of reverberatory chambers, D, separated by walls, *g*, each chamber being provided with one or more doors, *h*, in either or both sides, for the purpose of admitting air in sufficient quantities either to complete the combustion of the gases from the fire chambers or to check the draft. The reservoir is furnished with a door, *h'*, for a similar purpose. At the rear end of the last chamber, D, there is a wall, *g'*, behind which is a drop flue, E, leading to the chimney.

The operation is as follows :—The gaseous products of combustion in the fire chambers, A, escape by the throats, *e*, into C, where they mingle together, and the combustible portion becomes ignited, and where their heat acts upon the boiler, and from thence they pass into the chambers, D, gradually, giving up their heat to the boiler, and finally descend the flue, E, to the chimney. The effect of the principal portion of the improvement, which consists in the employment of the reservoir, C, connected with the fire chamber by the throats, *e e*, of much smaller transverse area than the fire chambers, is that the products of combustion and heat are prevented leaving the fire chambers too rapidly, and the said chambers are consequently caused to be heated to an intense degree, and a very nearly perfect combustion of the fuel is obtained there, and when the gaseous products of combustion leave the chambers by the throats and arrive in C, the side walls and bottom being at a white heat, the still combustible portion of the gaseous products is ignited under the boiler. In the management of the furnace, care should be taken to supply the charges of fuel to the two fire chambers alternately as near as possible at regular intervals, so that in one there may be always a bright fire.

At night, or any time when no steam is required from the boiler, or when the generation of heat is not required, the two front feeders should be filled up with fresh fuel, the ashpit doors closed up, and one or more of the doors, *h*, opened, to prevent more than a very limited supply of oxygen to the fire chambers, so that when the doors are closed and the ashpit opened, the fire will begin to burn briskly. Any number of fire chambers may be employed in this most excellent arrangement for burning wet tan, bagasse, and such like fuel.

It was patented June 22, 1858, and any further information can be obtained by addressing the inventor as above.

BANTZ'S WET FUEL FURNACE.

Fig. 1.

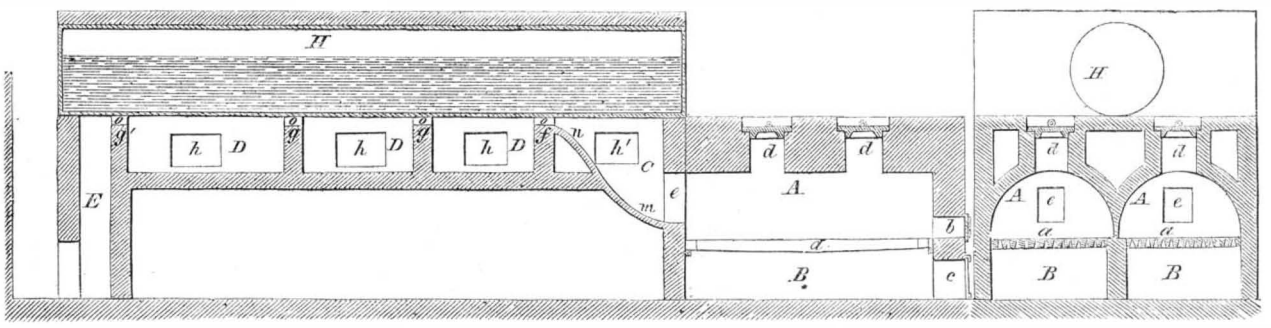


Fig. 2.

HARVEY & BECKER'S THRESHING MACHINE.

Fig. 1

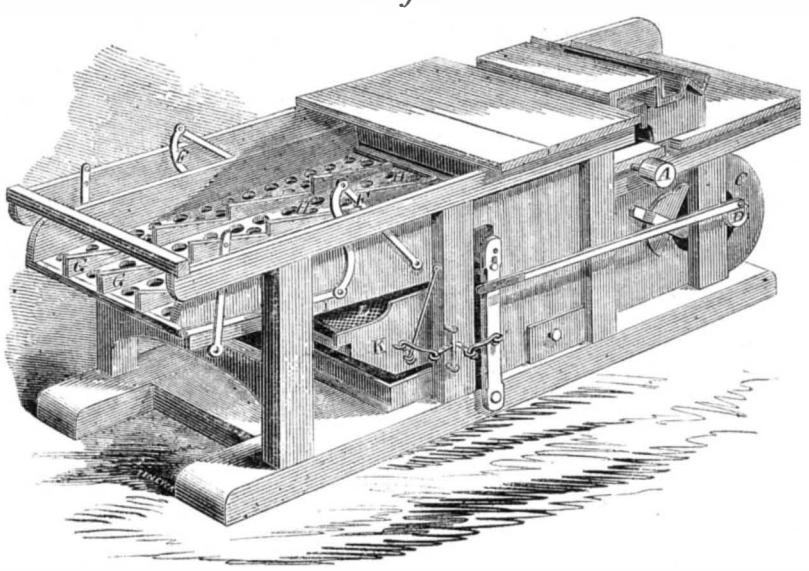
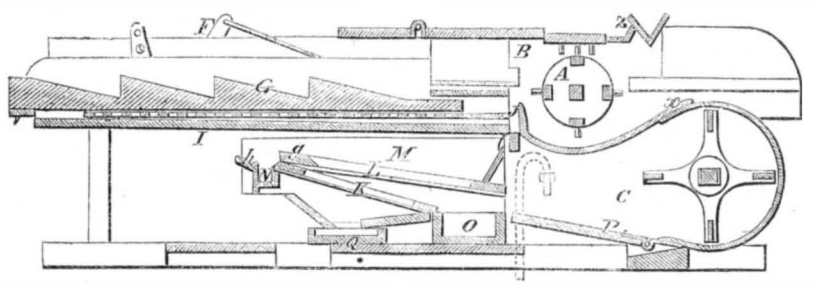


Fig. 2



This machine is intended to separate the loose grain from the straw before it is threshed, and also to thresh it, carry away the straw, and thoroughly separate the grain which has been threshed from the ears. Our engravings fully illustrate the invention, and we will now proceed to describe them. Fig. 1 is a perspective view of the machine, and Fig. 2 is a longitudinal vertical section.

A represents the revolving threshing cylinder and the band wheel by which it is driven, B the stationary concave, and C the blast fan and box, D is a crank wheel, giving motion to the separators through the link work shown, the driving pulley not being seen in our illustration. F are a system of levers giving a reciprocating motion to the toothed bars, G, which move over and in an opposite direction to the perforated bottom, H. I is an under inclined grain conducting board, G H I, forming the straw carrier. The bars, G, are to carry the straw to the thresher, and the perforated bed allows the corn that may be loose among it to fall down on to the conducting board, I, so that it does not pass through the threshing machine. J is a footboard at the lower end of the inclined conducting board, I, for the grain to strike against it as it descends. L M N represents the separator, K, Fig. 1, being the shoe or box. The screens, K L, Fig. 2, are both attached to the same frame, M, and vibrate together, the screen, L, being so slightly inclined as to cause the grain to work to its forward end, *g*. This screen terminates over a spout or chute, N, which has a guard-board, *h*, and serves to receive and conduct off the tailings and other foreign substances which are too heavy to be blown through the forward end of the machine by the blast of the fan. The second screen, K, inclines to the box, O, into which the cleaned grain empties, and below K are inclined boards to conduct seed passing through K to a receiving box, Q. The wind board, P, of the fan is hinged at its lower back edge, and its other edge is supported by straps so that it can be moved to direct the blast toward any desired point on the shoe or sieves of the separator. *x* and *z*, are two dust passages or outlets, so that the dust is conveyed away from the thresher and from the separator without at all inconveniencing the operator.

The great advantage of this machine is, that in the one frame and in a compact form it combines two operations, which are both perfectly and efficiently performed. The inventors are J. M. Harvey and N. J. Becker, of Amsterdam, N. Y., and they obtained a patent August 10, 1858. Any further particulars may be obtained by addressing the inventors or the general agent, George Howe, Fort Hunter, N. Y.

Zinc was first mentioned by Paracelsus in the year 1541.

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Scientific American.

NEW YORK, SEPTEMBER 18, 1858.

Science of Ocean Telegraphing.

Some of our cotemporaries have been indulging in somewhat curious speculations in regard to ocean telegraphing. After the cable was laid, on the 5th of August, it was stated that it would be in working order and open to the public in about two weeks. More than a month has since elapsed, and this promise remains unfulfilled. A few electric messages have passed across the Atlantic, but at long and painful intervals. On the 28th ult., news was received that the *Asia* was to sail from Liverpool on that day; the next news received from Europe was by the steamship herself, which arrived at Halifax on the 8th inst., thus beating the Ocean Telegraph eleven days.

The *New York Herald* attributes all the blame to the defective instruments of Professor Whitehouse, which it says are a combination of the Morse and Bain systems, (an impossibility, the one being chemical and the other mechanical,) and firmly asserts that Mr. Hughes' instruments would work the line with great rapidity. The New York *Evening Post*, of the 6th inst., assumes that the difficulty with the Ocean Telegraph is not due to the instruments, but to the cable itself. This is not a new idea, although it is put forth as such, and upon the most unscientific data.

It says: "We propose to consider the fundamental grounds of the difficulty, and apply them to the general question of ocean telegraphy. The velocity is not determined by the force and intensity of the electric current, nor by the thickness of the wire—these conditions only modify the law which determines the velocity of propagation. Professor Wheatstone sent a current through a brass wire the twelfth of an inch in diameter with a velocity of 286,000 miles per second. Mr. Walker, one of our own electricians, sent a current with the velocity of 18,000 miles per second. Messrs. Fizeau and Gounelle sent a current along an iron wire one-fifth of an inch in diameter 62,700 miles per second, while along a copper wire of double this diameter, they sent a current 110,000 miles per second. So that conductors made of different substances, and of different sizes of wire, do not give velocities proportional to their conducting powers. Hence it follows, that the difficulty of transmission with ocean cables will be one of velocity and not of power. This we might have anticipated from the discussion of first principles; and the Atlantic cable has verified the theoretic inference."

To derive such an inference and arrive at such a conclusion, extracts from "Gulliver's Travels" would be as useful as the above, relating to the experiments with electric conductors. The reasoning of the *Post* amounts to this in plain language:—An electric current moves with as great a velocity in a copper as in an iron wire; therefore, as the conducting wire of the ocean cable is of copper, the difficulty of transmission is one of velocity. A droll conclusion from such a premise. The experiments related prove that currents flow more rapidly in large than in small conductors, and the law of resistance in this respect is well known. But these experiments only determined the velocity of *currents per second*, not according to the length of the line, which is quite a different question, and the one under consideration.

It is well known that a resistance is offered to the electric currents in all conductors, and this resistance is in proportion to the length and thickness of the conducting wire. The longer the wire the greater the resistance; the thicker the wire the less the resistance. One mile of copper wire one-tenth of an inch thick offers as much resistance as one four miles long the fifth of an inch thick. The *Post* is correct in one particular. It says that hot and cold currents in the ocean will affect the time of the passage of the electric current in the cable. Sir Humphrey Davy made this discovery, and it accords with the working of our telegraph lines on land. In very cold weather the current flows freely, while in warm weather telegraphing is greatly impeded. If the Ocean Cable passes through a portion of the warm Gulf Stream, its conducting power must be greatly impaired.

To provide a remedy for this difficulty, the *Post* proposes that a cable should be constructed with permanent magnets attached at intervals along it whole length. This would increase rather than remove the difficulty. The Ocean Cable partakes too much of the character of a permanent magnet now. It is a sort of Leyden jar, charged with electricity, and thus it presents a counter force to the rapid transmission of signals. The resistance to the current in the Ocean Cable in proportion to the length of the wire, is inversely as its diameter, and the relative difference between the conducting power of the wire and the insulating coating of gutta percha. Thus the seven copper wires in the interior of the cable are one-twelfth of an inch in diameter, and the coating of gutta percha is two-twelfths of an inch, or four times the capacity. Allowing the gutta percha to be fifty million times inferior in conducting power to the copper, the current in a cable 3,157 miles would be restored to equilibrium. As the Atlantic Cable therefore is 2,022 miles long, about two-thirds of the amount of the force of the current must be absorbed in passing through it. When it is also taken into consideration that primary currents produce inductive currents in the cable, the difficulty of ocean telegraphing will be rendered obvious by the use of any instrument whatever. Had the cable been larger, it would have formed a better conductor, but that a current can be sent through it at all, affords some grounds of hope for future improvements in Ocean Telegraphs. This ocean line, we trust, is only the pioneer of others.

The *Tribune* of the 9th inst. contains a letter from Mr. Field in reference to the silence of the Ocean Telegraph. He attributes the difficulties to the use of the instruments of Professors Whitehouse and Thompson, but states that these will soon be removed, and those of Professor Hughes will be substituted. In reference to this telegraph, he says, "there is no reasonable doubt that Professor Hughes will be able to transmit intelligence through the cable reliably at the rate of about three hundred words per minute."

Mr. Field, we think, is inconsiderate in his statements. In endeavors to send simple currents through the Ocean Cable, these have sometimes ceased to flow for a considerable period of time, without any apparent cause; then they would flow again, in the same inexplicable manner. As Hughes' instrument does not generate, but is operated by these currents, it cannot remedy this difficulty, as it is one which belongs to the cable, not to the operating instruments. The Hughes' telegraph also requires a strong current, whereas, the currents sent through the cable have been very feeble. The correct operations of this telegraph depend on the simultaneous revolution of a type wheel in Ireland and another in Newfoundland. If one revolves an instant faster then the other, a wrong message is sure to be sent. In such a long line, this must frequently occur, and thus by the instruments getting out of register, they will often be rendered incapable of satisfactory operation.

Crisis of the French Iron Trade.—According to the French papers "the very existence of the iron trade in France is at stake." Several large establishments have closed, many others have slackened work, and discharged numbers of workmen, having on their hands the products of the last six months.

The Sewing Machine Controversy.—Important Case.

Several suits in equity are now pending in this and adjoining States, in which the Wheeler & Wilson and Grover & Baker sewing machine companies are the complainants. Their purpose is to enjoin the manufacture and sale of certain sewing machines invented by other parties, and which, the complainants allege, violate their patent in the apparatus for feeding the cloth. One of these suits, in which the Atwater ($25) Sewing Machine Company is the principal defendant, was set down for argument, on a motion for a preliminary injunction, on August 25th, before Judge Ingersoll, United States District Judge, sitting in circuit at New Haven, Conn.

A large number of parties, inventors and others interested in sewing machine patents, were present in court. The complainants were represented by ex-Senator Baldwin, of Connecticut, George Gifford, of New York, and the Messrs. R. and C. J. Ingersoll, of Connecticut. James T. Brady and Edward N. Dickerson, of New York, with whom was associated George G. Sickles, of New York, appeared for the defendants.

In these cases the complainants filed bills for injunctions, and on the 25th ult. the motions to restrain the further manufacture of the Atwater and Herron sewing machines, came on to be heard at New Haven. After reading the papers, and before the opening of the case on the part of the complainants, it was suggested to the Court by the counsel for defendants that upon the face of the bill there appeared a fatal defect in the title of the complainants, and that it would be a waste of time to enter upon any extended discussion of the questions of infringement or of invention until that was settled.

The bills disclose the fact that the present owners of a *portion* of the patent granted to A. B. Wilson, November 12, 1850, have, from time to time, conveyed their interests to the patentee, for the purpose of procuring reissues at the Patent Office, and that after each re-issue the new patent had been re-conveyed to them, but that they had not procured the consent or co-operation of the owner of the remaining portion, whose title to the original patent is still existing and valid.

Messrs. Baldwin, Ingersoll, and Gifford, for the complainants, contended that an owner of any portion of a patent might surrender and re-issue it at pleasure, leaving his joint owner the privilege of selecting between the original and re-issued patents, and of retaining the original, so far as his interests were concerned, in full force against the public, if he thought it better than the re-issued patent.

Messrs. Brady and Dickerson contended that but one good patent could exist at a time for one invention; and that as the original patent in this case had never been surrendered by all the owners, it must be true that any other patent for the invention covered by that original existing patent must be void.

Thereupon the counsel for the complainants asked for a week to prepare themselves more fully to argue this interesting point; and the Court, after making some suggestions somewhat favorable to the views of the defendants, but without expressing any decisive opinion upon the question, adjourned the further hearing till the third Tuesday in September, in order to give the complainants the opportunity they desired for more mature reflection.

Death of Edward Pease.

This amiable and talented gentleman died a few weeks since, aged ninety, at his residence in Darlington, England. He was a member of the Society of Friends, and had lived a calm and peaceful life, ever doing good and encouraging humble and rising genius. He it is to whom Great Britain, in a great degree, owes her railway system, for when George Stephenson was a humble colliery engineer, Mr. Pease believed in his ideas, and advanced the capital and used his vast commercial influence to construct. the first railway on which a locomotive ever traveled. To his dying day, George Stephenson remembered him with gratitude and affection, and Mr. Pease was always pleased to exhibit a handsome gold watch. received as a gift from his celebrated protégé, bearing the words:—"Esteem and Gratitude, from George Stephenson to Edward Pease."

Among the Statues.

Powers' colossal statue of Daniel Webster recently lost on the voyage to Boston, is now in course of reproduction from the original model. The process will require about twelve months.

Mr. Hart's marble memorial of Henry Clay, for the ladies of Virginia, is in progress, and will be completed this year. The same artist is occupied on a model for a colossal bronze figure of Clay for the city of New Orleans.

Mr. Jefferson is also being commemorated in marble, for the State of Virginia, by a young sculptor—Mr. Galt.

Harvard University has secured another of Powers' busts—that of Jared Sparks, the late President. "California," his latest effort in art, is completed, and will be immediately shipped to New York, for Wm. B. Astor.

New Appointments at the Patent Office.

R. R. Rhodes, of La., to be Chief-Examiner of Class I. (*Harvesters*).

A. M. Smith, of N. Y., and John Shugert, of Pa., to be Assistant-examiners of the above class.

Henry Wurtz, of N. Y., to be Assistant-examiner of Class IV. (*Chemical Processes*).

H. N. Taft, of N. Y., to be Assistant-examiner of Class IX. (*Civil Engineering*).

Robert D. Clark, of Mich., to be Assistant-examiner of Class X. (*Land Conveyance*).

Joseph Fales, of Iowa, to be Assistant-examiner of Class XVII. (*Household Furniture*).

Edward Holmead, of Md., to be Assistant-examiner of Class XVIII. (*Firearms*).

All the above appointees are able and accomplished gentlemen. Mr. Rhodes, the new chief of the Harvesters, is very highly spoken of. Mr. Wurtz enjoys an excellent reputation as a practical chemist.

We believe it is now generally admitted that the Patent Office has suffered nothing, but rather gained, by the removal of sundry of the elder examiners, who were chiefly distinguished for their dogged adherence to old-fashioned views. Under the generous and liberal interpretation of the Patent Law introduced and insisted upon by the present Commissioner, Mr. Holt, the Office is working with admirable harmony and efficiency.

Something for our Friends.

If at any time we should reasonably entertain fears for the immediate prosperity of the Scientific American, they would probably have taken hold of us at this particular period. We know that there is now nothing like a "panic," such as we encountered at this time last year, just as we were beginning a new volume; but there is that which is sometimes worse than a panic—a deadness in the arteries of the mechanical trades of our country—the result of a commercial depression. Yet in spite of these adverse influences the Scientific American has a host of true friends who are now actively canvassing for it; and at no former period in its history have subscriptions come in more encouragingly than at present. Our friends are doing nobly, and we heartily thank them. Their good words and their fine lists of names cheer us, and we hope they will continue to persevere in their well-doing until they have increased the subscription-list of their favorite paper to at least five thousand above what it had at the close of the last volume. The editorial force employed upon the Scientific American was never so strong as now; and altogether we can confidently promise our readers that the present volume will afford a rich and rare treat of useful and entertaining matter.

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The Gulf Stream.

TO LIEUTENANT MAURY, U. S. N.

DEAR SIR:—A few evenings since I was engaged in conversation upon a subject in which I had previously devoted some considerable thought, and on which I had proposed to lecture, but other things having occupied my time I have not done so; but as you, as an authority, were appealed to during the conversation, pardon me for addressing you upon this subject. You have taken a deep interest in making soundings of the ocean and a general chart of its waters; you may, therefore, be better able than any other man to say whether the theory entertained by me for the cause of the Gulf Stream is correct. If you think it worth your while to examine into that theory and understand what it is, you would oblige us. In order for you to do so, it is proposed you should take a map of the world, and examine the position of the rivers of this continent lying between the Alleganies and Rocky Mountains, those of Mexico, and in our southern States that border on the Gulf of Mexico, those of Central America and the northern part of South America, and observe into what they flow, and then the narrow gorge or outlet between the coast of Florida and the island of Cuba. These innumerable and hundreds of thousands of miles of rivers, some of the largest capacity and greatest length of any on our globe, throw their accumulated waters into the Gulf of Mexico, and have to make their exit to the ocean, dammed up as they are from escaping in any other direction by the long reach of the Antilles, which by their own heads, or by their sunken rocks, affords a complete barrier to their passage in any other way than through this narrow gorge, and then ask yourself the question whether this great accumulation of waters in the Gulf of Mexico, subjected as they must be to the tropical heat of the sun through the Gulf, having to flow so great a distance, and presenting it to so large a surface, subjected to the heat of 90° to 100° or more, might not explain the fact that when they arrive off the eastern coast of Florida they should have attained to a degree of heat of 76° (that being the heat of the waters in the Gulf), and that they should rush through that gorge with the velocity they do, every particle of which is ever and continuously pushed on by the constant rush of these rivers. Then take into consideration that there is a tide setting into the Caribbean Sea, commencing at Cape St. Roque, on the north-east point of South America, which continues through that sea and through the Gulf of Mexico to add to its waters, after being subjected to the same tropical sun, through the vast extent of this sea and Gulf and along the coast of South America, to be added to those of the innumerable rivers that flow into the Gulf, and all to have their outlet through the narrow space between Florida and the island of Cuba. It has seemed to me that this is a proper solution of this great phenomenon, and the meeting of these heated waters with the salter and colder waters of the ocean is the occasion of the phenomena that takes place at this outlet of them, walled up, as they are, between the coast on either side. In looking at the map and considering attentively these facts, and your superior knowledge of the position of things there (for I have never been there to examine them), you may be able to confirm or disprove that such causes could produce such results.

Again, look at the map of the waters that run into the Mediterranean Sea, and what is the course they must take? We understand it has been ascertained that while the water is, apparently, constantly flowing into that sea from the ocean, there is an under current that flows into the ocean, shooting, as it were, under it, producing, till that current was ascertained, the unaccountable phenomenon of inward flow of the ocean through the Straits of Gibraltar, which led the scientific to suppose there must have been sufficient evaporation going on by the Sun to carry off these waters, accumulating, as they apparently did, from so many sources. We understand there is a tide commencing at the Bay of Biscay, (supposed to be occasioned by the trade winds) running south on the coast of Africa till it meets with a current running from the Cape of Good Hope, occasioned, as is supposed, by the monsoons; and perhaps, I may add, a current round Cape Horn, both of which are, perhaps, occasioned by the waters that flow into the Pacific on the western coast of South and North America, and the southern and eastern coast of Asia, which, joining with the current as it shoots off the north-western coast of Africa, strikes the north-eastern coast of South America at Cape St. Roque; then you will perceive by the formation of that coast, it would lead this current into the Caribbean Sea, and meet the waters that flow into the Gulf of Mexico. Now, keeping your eye on the course of the Gulf Stream, the question has arisen in my mind whether, after striking the coast of Europe, it does not continue down that coast till meeting with the waters that flow into the Bay of Biscay and the waters of the Mediterranean, as they arise from their submersion, and continue on in their course, making thereby the great circle of the waters, and accounting for the immense currents that are constantly circulating through the ocean.

I have heard that the influence of the Piscatiqua river is felt in the ocean twelve miles from its mouth. You may know, perhaps, in the Exeter, Newmarket, and Durham rivers there are what are called the great and little bays, containing a number of thousands of acres, which have to be filled and emptied at every rise and fall of the tides, which, together with the waters which come from the other branches of that river, probably producing its rapid flow—so rapid that it never freezes over. The question has arisen if so small a river and bays, comparatively speaking, can produce such effects that their influence can be felt so far out at sea, and other rivers on the coast are felt in a similar manner, what may or what must be the effect of so large a number of rivers of such extreme length, many of these three or four thousand miles long, and bearing on their bosoms, as has been expressed, whole forests of trees, and acres of land sunk beneath their waves? and these continue ever flowing, and are, without cessation and without ceasing, pushing before them, for an eternity of ages, the waters that immediately preceed them.

Taking this view of the subject, the question arises, will these facts, in your mind, explain the currents of the ocean? and will the observations you have made in your valuable surveys confirm this theory, and enable our navigators better to understand the currents, counter currents, and eddies which it is presumed they meet with in all parts of its waters? G. W. F. MULLEN.

Boston, Mass., August, 1858.

[The above letter was sent to us for publication in the form in which it now appears. We have not made any alterations, even in the heading, as it contains so much that is new, that we thought the author should state his theory exactly in his own way. Should Lieut. Maury think it worthy a reply or comment, we shall be happy to publish that also. —EDS.

The Color of Wall Paper.

MESSRS. EDITORS—On page 320 of Volume XIII. of the SCIENTIFIC AMERICAN, I find an article on the poisonous qualities of certain green wall paper, where arsenic was made use of in its manufacture, causing, as was supposed, the air of the room to be impregnated thereby. I think I can say a few words upon this subject, which, if they do not satisfy you as to the real cause, may assist, by further research, to clear up the case.

But few persons have any idea of the baneful influences which different colors have upon the mind and body. Some two years ago, I noticed in one of the New York papers the account of a physician, who had for months failed to make any change in the health of a whole family he was attending, all of whom were affected alike with a stupor of mind and languid state of the nervous system. At length, upon entering the room one day, he observed the dingy, yellow color of its walls. This struck him very forcibly, and he immediately caused them to be whitewashed, when to his surprise and satisfaction, he found, upon his next visit, the patients who had been confined for months, almost entirely recovered. No more physic was necessary.

I well know the depressing effect which the color of my office has upon my mind and body. I cannot sit down with any satisfaction, and I often fall asleep in five minutes when I attempt to read; thus causing stupor and a languid state of body. The office next door, being whitewashed, has no such unpleasant effect, everything being much more cheerful, and tending to promote lively spirits. The color of my office is a light green, made so on account of my eyes for ease in operating upon the mouths of patients. Who has not experienced an elevation of spirits when the sun shines out after a dark and gloomy storm? You well know the effect it has upon organic matter—the animal and the vegetable worlds. After the dark night, all hearts leap for joy on the dawn of the bright morning. Pure white light is necessary to health, and more attention should be paid to the coloring of the walls of rooms for the sake of promoting it. W. G. A. B.

Dover, Del., August, 1858.

Submarine Cables.—Who is the Man?

A correspondent of the New York *Tribune* asserts that J. J. Craven, a Newark mechanic, was the first to apply, in 1846, gutta percha to the covering and insulating of submarine electric wires, and claims for him a share of the praise now so freely bestowed upon a certain few whose names have been brought prominently before the public in connection with the Atlantic Cable. This is a mistake. Mr. Craven made application for a patent for the application of gutta percha to the covering of wires in the summer of 1848; and the patent was refused, on the same ground that one was refused J. Reynolds, of this city, for the same purpose, *some months previous*. We do not know who was the first to apply this important non-conducting material to telegraph wires, but we do know that as early as 1846, before gutta percha had been known to any useful extent in this country, Mr. Reynolds constructed a machine for insulating wires, one or more in number, with india rubber softened by camphene, and macerated by forcing the gum so softened through a seive-like die connected with the same machine in which the insulating was effected. Samples of iron and copper wire thus coated were shown to Professor House, the inventor of the printing telegraph, Mr. J. Richards, the constructor of the House instruments, and others. In the autumn of 1846–'47, two lines of wire were thus insulated with a compound of india rubber and sulphur for Mr. Hugh Downing, the President of the House Telegraph Co., for connecting this city and Philadelphia by telegraph; and in the months of April, May and June, 1848, a large amount of small iron and copper was insulated and covered with gutta percha by Mr. Reynolds, for persons connected with the Morse lines; and in July of that year four miles of No. 9 iron wire were insulated with a double coating of gutta percha by the same gentleman, a part of which cable was placed at the bottom of the river between New York and Jersey City. The persons for whom this cable was made were supposed to be in the employ of Professor Morse. In the years '55, '56, '57, ten miles of No. 9 wire on reels of one mile in length were covered with a double coating of gutta percha by Mr. Reynolds, and a great quantity of No. 16 with a single coating.

The machinery for performing these results is of the most ingenious character, and a patent for it was applied for in 1848, but on account of Mr. Reynolds declining to make a disclaimer, the patent was not obtained until 1856, when, through our Agency, this patent and four others were secured for working gutta percha into useful articles. We also secured a patent for the same inventor in 1850 for covering wire.

In reference to the claims of Samuel T. Armstrong, who has also received a prominent notice in the *Tribune* for his supposed agency in insulating wire with gutta percha, we would state that all the useful machinery ever employed by him for this purpose was invented and made by Mr. Reynolds, and operated by Lorenzo Higgins, of this city.

Those who are so willing to rush into print, claiming the honor of great discoveries, should be careful not to spread too much canvas at the start, as they are liable to have their honors ruffled, and the wind finally taken out of their sails.

The Potato Rot.

In regard to the Henderson insect theory and cure of the potato rot, the *Country Gentleman* remarks:—

"Now if the theory that the potato rot is caused by this insect is correct, there are these difficulties, which must occur to any one acquainted with entomology:—

1. The insect referred to has *always been known* in this country, and was probably quite as numerous fifty years ago as it ever has been since. From the earliest times the farmers have found it infesting their potato fields, and have consequently given it the common name of the "the potato bug." Why did it never cause the rot until so recently?

2. The insect referred to has *never infested* Great Britain; the only examples of it seen there, so far as we can ascertain, having been carried thither as curiosities in collections gathered in this country. Why did the potato rot appear there? Could the devastations of the insect in the crops of America have caused the rot that carried off all the potatoes in Ireland one or two years before?

Lest there might be some mistake on our part, we submitted this subject to Dr. Asa Fitch, who will surely be received as an authority, and whose endorsement we have for the statements in the last two paragraphs."

In answer to these inquiries, we would only say that the *Phytocoris* has *not* been known in this country as causing the potato rot, and the insect that farmers have known from the earliest times as the "potato bug," is the *Aphis*, and not the *Phytocoris*. Mr. Smee has observed this insect in Great Britain, and we are not aware of any entomologist in England who would look upon a *Phytocoris* as a curiosity. We think that were Dr. Fitch, with his great entomological knowledge, to investigate the matter carefully, he would do much good, both to practical farmers and pure science. The *savant* can never be better engaged than when verifying, by attentive observation, the discoveries of only practical men, and at the same time separating truth from the weeds that often surround it. Perhaps the Dr. may be induced to reconsider what is apparently an unfavorable verdict, and if he does, we shall look anxiously for a report of his investigations.

In confirmation of Mr. Henderson's statements we publish the following communication:—

MESSRS. EDITORS—*Now* is the time for each one to verify for themselves, by experiment, the value of Mr. Henderson's statements in reference to the cause of potato rot, as set forth in a late number of the SCIENTIFIC AMERICAN.

I confess I was led to experiment because the SCIENTIFIC AMERICAN indorsed Mr. Henderson's statements, which I did simply as follows:—I took a perfectly healthy piece of vine and placed it in a bottle of water, and put thereon a few of the bugs, and set it out of the way of other insects. In twenty-four hours half of the leaves of the vine had all the usual symptoms of the disease. Seeing is believing; and as at the present moment each one can try an experiment, they should do so, and make the result as widely known as possible. The information is too important to be neglected. Yours, truly,

WILLIAM CLEMSON.

East Woburn, Mass., September, 1858.

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Notes and Queries

*** Persons who write to us, expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz., to furnish their names, otherwise we cannot place confidence in their communications.

Wire Gage.—A very complete wire gage, which has met the approval of the first brass manufacturers in the country, can be procured of Messrs. J. R. Sharpe & Brown, of Providence, R. I.

J. C., of Mass.—Shears and scissors of all kinds, and of the very best quality, can be obtained of Messrs. Wendt & Seymour, No. 31 Gold st., this city.

Poisoned Dogs.—A correspondent from Alabama informs us that he relieved two valuable dogs, poisoned with strychnine, by the administration of about a teaspoonful of camphor gum to each. The relief was almost instantaneous. They were down, and unable to move.

A. W., of Me.—Dr. Scoresby (a good authority on such subjects) asserts that the highest waves of the Atlantic are not over forty feet; but it is said that the altitude of the waves of the Indian Ocean exceed fifty feet. It is also asserted that at the depth of three hundred feet no disturbance is felt in the water of the ocean.

J. T., of Ind.—It has been told to us by at least one hundred different persons within the past ten years, that they had discovered "perpetual motion," and without any other knowledge of the special contrivance beyond the simple assertion, we have replied: "Impossible—you are deceived." Now, we confess that we have no sympathy with visions of this character, and the sooner all such dreamers learn that to accomplish this result they must needs have the power of creation, the better it will be for them. Theorists and speculators who search for such chimeras are usually wholly ignorant of the laws of dynamics, and are, therefore, unsafe advisers in such matter. We once conversed with an ingenious Bohemian, who acknowledged having spent nearly ten years vainly looking for it. He several times *almost* got it, but at last gave up in despair, and declared it impossible—a dearly purchased experience. You are in the same boat, and the quicker you swim ashore the better.

F. S., of N. Y.—The point of contact of one sphere with another is a mere point, no matter what may be the size of the sphere.

G. W. H., of N. Y.—We cannot help thanking you for the compliments you pay us; and in answer to your suggestion for laying the cable, we would say that the same plan has been proposed many times before; but there are many practical difficulties to paying a cable through the bottom of a ship.

C. L. R., of Wis.—The samples of leather are excellent in appearance. but how about the durability? Many things look well, but it is dangerous to become very familiar with them. Our experience in the use of rapidly tanned leather has been rather disagreeable, and somewhat expensive.

Red-hot Water.—A correspondent inquires:—"Is there any such thing as heating steam red-hot, so as to explode like gas by ignition?" Water is composed of two gases, oxygen and hydrogen. It can be decomposed and resolved into elementary gases by the action of incandescent platinum, and when the gases are thus ignited they explode with great violence. We have heard of red-hot steam, but have never seen it.

Patentees.—We are glad to receive so many letters from our clients, thanking us for our services in procuring patents for them. These friendly expressions are always gratefully received and duly appreciated.

B. B. L, of Ohio.—Although water is theoretically incompressible, it is, in common with all other bodies, composed of molecules, and at the great depths of the ocean these are pressed nearer together by the weight of the superincumbent water, so that, in fact, water is capable of some compression, and as we have no mechanical means for testing the amount, we can only form our ideas from a course of inductive reasoning.

L. B., of Cal.—You had better write to the Secretary of the Society of Mechanical Engineers, Manchester, England, who will, we have no doubt, forward your letter to Mr. Siemens, and by that means you will obtain all the information you desire.

G. M., of N. Y.—You ask: "What would be the effect of mixing twenty-five per cent of atmospheric air in the gasometer, with the gas which supplies the city? Would it not effect a saving?" It would not be of any benefit to the consumers, although it might increase the profits of the gas company. The addition of air to gas dilutes it, and depreciates its quality.

Dr. I. Hendree, of Selim, Ala., inquires where he can get a good machine to make a very finished and superior pine shingle.

C. F. H., of Pa.—Borden's condensed milk is prepared in vacuo, at a low temperature. The office of the company is in this city.

C. H., of S. C.—The first telegraph line lain in England (in 1839) had the wires insulated in glass tubes, and laid in the ground; your suggestion, therefore, as to the use of such tubes, is not new. We agree with you that in many situations this plan would be the best, although the most expensive.

Porter and Ale.—Temperance people will find an argument to enforce their doctrines, in the fact that 41,071,636 bushels of grain, paying $25,000,000 duty, are annually converted into malt in Great Britain, for ale and porter. From this, some idea may be formed of the vast quantity of the most important staple of life wasted in the production of these beverages there. Franklin was not far from the truth when he ascribed much of the poverty and misery of the people of Great Britain to their habit of drinking their bread instead of eating it.

D. B. W., of N. Y.—We are not acquainted with any published work on Selenography.

C. Y. P., of Mass.—No saving of cost is secured by evaporating liquids in vacuo. You therefore could not obtain a patent for economising fuel by evaporating salt brine in vacuo.

S. M. C., of Wis.—There are quite a number of the "Corliss cut-offs" in operation. They give satisfaction, so far as we are aware.

E. P. B., of Me.—You are correct in regarding inertia and gravity as the causes of the peculiar motions of the rotoscope; but so much has been published on this question that it has become stale and uninteresting.

Effect of an Earthquake.—A short time ago there was an earthquake in the Granite State. A letter from Rumney says that the shock was felt in that town and in Hebron; it shook the houses quite perceptibly. But the worst effect of the earthquake was. that it shook the confidence which has always been felt in the primeval rocks of New Hampshire.

J. A. R., of Mass.—You had better wait until it is positively determined to lay another cable across the Atlantic, and then propose your plan to the company.

P. L., of Ga.—The kind of compass and sundial you described is made and sold by every philosophical instrument maker. The patent must have been granted on some peculiar feature in the combination of the needle with the dial.

W. M. K., of N. Y.—We thank you for your complimentary allusions to the Sci. Am. We mean at all times to make its columns utter the honest convictions of our sober judgment, without reference to the selfish views of cliques and parties; and when we wrote upon the canal question, the "smell or taint of the Central Railroad influence" did not hang upon the skirts of our garments, however it might appear to those who can see virtue only in a canal, or *vice versa*. We are so fortunate as not to need the smile or favor of any soulless corporation, and are prepared at all times to defend or oppose them, as we think proper.

Ground and Hazel Nuts.—Ground nuts are quite an institution with "Young America," eight hundred tuns having been imported into the United States from Gambia in one year. But France is the great market for ground nuts, where they are used for oil, of which they contain large quantities. The insignificant hazel nut, so agreeable to the palate, but so difficult to get, is exported from Tarragona, to the extent of 25,000 or 30,000 bags, of four to the tun. A kind of chocolate is prepared from them, and they have been sometimes made into bread. The pressed oil of hazel nuts is little inferior to that of almonds.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, September 11, 1858:—

I. W. H., of L. I., $50; H. B. T., of Wis., $30; W. & N., of Ill., $30; D. W. T., of Ill., $30; W. B. B., of Conn., $30; P. H. C., of Ala., $25; W. W. L., of Ohio, $55; O. H.M., of Iowa, $30; J. F. H., of Ky., $55; A. W. L., of Mass., $30; H. B., of Ind., $30; J. R. H., of Conn., $25; R. & M., of Vt., $35; J. F., of Mass., $30; A. H. G., of N. Y., $31; N. & Y., of N. Y., $25; W. T., of Ill., $30; C. N. S., of Conn., $25; J. P., of Tenn., $15; F. H., of N. Y., $27; O. B. T., of Ohio, $30; J. C. T., of N. Y., $15; E. W., of Mass., $60; E. B., of N. Y., $25; F. R., of Mass., $25; J C., of N. Y., $25; L. H. M., of R. I., $35; P. P. J., of Pa., $25; S. & G. Y., of Pa., $30; J. W., of Ind., $25; G. B. C., of N. Y., $30; H. H. P., of N. Y., $30; D. S., of Wis., $63; J. C. S., of Mass., $250; G. I. C., of Vt., $25; S. M. B., of La., $50; F. Y., of Ky.. $25; A. C., of N. Y., $25, D. S. McN., of N. Y., $55; G. C., of Ky., $30; J. D. R., of Pa., $30; H. G., of Ill., $25; J. H. B., of N. Y., $20; N. W., of Ala., $30; C. C., of Ind., $50.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, September 11, 1858:—

C. N. S., of Conn.; F. Y., of Ky.; L. H. M., of R. I.; R. & M., of Vt.; J. W., of Ind.; F. H., of N. Y.; E. S., of Vt.; G. I. C., of Vt.; F. R., of Mass.; J. R. H.. of Conn.; J. H. B., of N. Y.; E. B., of N. Y.; P. A. C., of Ala.; G. C., of Ky.; P. P. J., of Pa.; G. B. C., of N. Y.; D. S., of Wis.

American and Foreign Patent Solicitors.—Messrs. MUNN & CO., Proprietors of the Scientific American, continue to procure patents for inventors in the United States and all foreign countries on the most liberal terms. Our experience is of thirteen years' standing, and our facilities are unequaled by any other agency in the world. The long experience we have had in preparing specifications and drawings has rendered us perfectly conversant with the mode of doing business at the United States Patent Office, and with most of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office, 128 Fulton street, New York. We established, over a year ago, a Branch Office in the City of Washington, on the corner of F and Seventh streets, opposite the United States Patent Office. This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office, are cordially invited to call at our office.

We are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business we have offices at Nos. 66 Chancery Lane, London; 29 Boulevard St Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we may safely say that three-fourths of all the European patents secured to American citizens are procured through our Agency.

Inventors will do well to bear in mind that the English law does not limit the issue of patents to inventors. Any one can take out a patent there.

Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the principal office or either of the branches.

The annexed letter from the late Commissioner of Patents we commend to the perusal of all persons interested in obtaining patents:—

Messrs. Munn & Co.—I take pleasure in stating that while I held the office of Commissioner of Patents, more than one-fourth of all the business of the office came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.

Communications and remittances should be addressed to MUNN & COMPANY,
No. 128 Fulton street, New York.

To Lumber Merchants—For Sale—The Pontiac Mills, Ottawa river, Canada, with extensive limits. Mill cost $150,000, but will be sold at a great sacrifice, to wind up the estate. Liberal terms of payment. Apply to JAMES DOYLE, Aylmer, C. E., HENRY McKAY, Montreal, or to GORDON & BRUCE, New York City. 2 3*

To Brickmakers—EVERY MAN WHO has witnessed our machine—when operated by only three horses it turns out the most solid and perfect bricks at the rate of sixty per minute—pronounce it not only superior, but altogether beyond and above comparison with any other in use. For particulars address the undersigned at Philadelphia.
2 4* J. W. & E. C. JAYNE.

Stephens' Stains for Wood—AT half the cost of paint, dyeing, and bringing out the grain of pine or any inferior wood, so as to resemble black walnut, rosewood, mahogany, satinwood or oak. Sold in highly concentrated powders at $2, $1, 50 cts. and 25 cts. per packet, corresponding to the gallon, half gallon, quart, and pint of liquid.
HENRY STEPHENS. Chemist, London,
and 70 William street, New York.

Second-Hand Machinists' Tools—Viz., Engine and Hand Lathes, Iron Planers, Drills, Chuck Lathe, Gear Cutter and Vises, all in good order, and for sale low for cash. Also one new first-class Woodworth Planing and Matching Machine. Address FRANKLIN SKINNER, Agent, 14 Whitney avenue, New Haven, Conn. 1 13

Corliss' Patent Steam Engines—About 250, most of them from 40 to 400 horse power, are now in operation. On application, pamphlets will be sent (by mail), containing statements of responsible manufacturing companies where these engines have been furnished, for the saving of fuel, in periods varying from 2½ to 5 years. Boilers, shafting, and gearing.
CORLISS STEAM ENGINE CO.,
1 4* Providence, R. I.

Woodbury's Improved WOODWORTH Planing, Tonguing and Grooving Machines, are warranted to be vastly superior to any other machines in this country. When exhibited, they have always received the highest premium. Two gold medals have been awarded. Six patents have been granted to secure the improvements on these machines.
All sizes constantly for sale, by JAMES A. WOODBURY, 69 Sudbury street, Boston. 1 8*

Rivets.—IRON BRIDGE, SHIP GIRDER, Boiler, Tank, Tender, Gasometer, and Stove Rivets.
Railroads, Locomotive and Machine Shops, Gasometer Manufacturers, &c., supplied with every kind of rivet used in the trade.
PHILLIPS & ALLEN, Rivet Works,
Pennsylvania avenue, west of 22d st., Philadelphia.
1 4*

Engraving on Wood and Mechanical Drawing, by RICHARD TEN EYCK, Jr., 128 Fulton street, New York, Engraver to the Scientific American. 1 4*

Cridge, Wadsworth & Co., manufacturers of improved patent Oscillating Steam Engine, with variable governor cut-off. Shop, county, and State rights for sale. Also one-half the patent for Great Britain. For illustration see Sci. Am., Vol. 13, No. 51. Circulars with testimonials, &c., sent by mail on application to CRIDGE, WADSWORTH & CO., Pittsburgh, Pa. 1 3*

Iron and Composition Castings, Chilled Rolls, Mill Gearing, Fan Blowers, Trip Hammers, Shafting, Shears, Presses, India Rubber Calenders, Grinding and Cutting Machines, Turbine and Center-vent Water Wheels, also contracts made for Breast and Overshot Wood Wheels, also orders taken for the manufacture of patented machinery of all kinds, by the BIRMINGHAM IRON FOUNDRY, Birmingham, Conn.
1 tf SHELDON BASSETT, President.

Engraving of Every Description—Machinery, Patents, Maps, &c., by WM. J. BARKER, No. 23 North Sixth street, Philadelphia, Pa. 1 4*

Portable Steam Engines.—S. C. HILLS, 12 Platt street, New York, offers for sale these Engines, with Boilers, Pumps, Heaters, etc., all complete, suitable for printers, carpenters, farmers, planters, &c. A 2½ horse can be seen in store; it occupies a space 5 by 3 feet; weight, 1,500 lbs.; price, $240 Other sizes in proportion. 2 e3w

Bay State Planer and Matcher, with wrought iron cutter-head and Fitts' Patent Feed Works to surface, 24 inches wide, made by J. A FAY & CO., Worcester, Mass. 1 4*eow

Read This—Hughes' Missouri HAND Corn Planter—took first premium at United States Fair, September, 1857, in trial test—now challenges all others. Patented November, 1855, and September, 1857. County and State rights for sale. Send for a circular. Real estate taken in exchange for rights Address D. W. HUGHES, Palmyra, Mo. 1 5*

Great Fair of the American Institute at the Crystal Palace.—Articles will be received and located on and after Tuesday, September 7th. Entrance on Fortieth st. Exhibitors are requested to send their articles without delay.
1 2 F. W. GEISSENHAINER, Jr., Chairman.

Every Millwright, All Mill-OWNERS, and those interested in hydrodynamics, should become acquainted with the merits and principles of the improved Fourneyron Turbine Water Wheel, or the "Universal Turbine," a wheel the most economical in the use of water, and giving the highest percentage, with a partially raised gate, of any yet discovered. It gives from 75 to 97 per cent of power, according to the size of wheel and head employed. For information address S. K. BALDWIN,
Laconia, N. H.
N. B.—For low falls of one, two, or three feet, also for any fall, it will surpass all others. 2 13*

Warth's Self-Acting Wood-Turning Lathes.—The best and most practical now in use; one boy will accomplish the work of four men. State and County rights for sale. Address A. WARTH, care W. H. Bertling, 23 Chambers st., New York, or the manufacturers, who have machines of all sizes on hand. Also a general assortment of machinists tools. Circulars sent. Address CARPENTER & PLASS, 479 First ave., New York. 2 13*

Attention—SCREWS 50 PER CENT CHEAPer than any other manufacturer. Manufactory of all kinds of metal screws, of every description, and for every trade, such as manufacturers of Sewing Machines, Gas Fixtures, Scissors, Pianofortes, Machinists, Gunsmiths, Clocksmiths, Watchmakers, &c. C. DUCREUX, 510 Broadway (opposite St. Nicholas Hotel), New York. 2 1*

Oil! Oil! Oil!—FOR RAILROADS, STEAMERS, and for machinery and burning. Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer, F. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe. 1 13

The Works of the Aubin Gas Co., (General Office, No. 44 State st., Albany, N. Y.,) as now perfected, are adapted to all materials and localities, and are in successful operation in villages, factories, and private dwellings. For full information as to cost, probable income of public works, &c., apply as above. For plans, &c., see Scientific American of March 13th. 1 26

Steam Engines, Steam Boilers, Steam Pumps, Saw and Grist Mills, Marble Mills, Rice Mills, Quartz Mills for gold quartz, Sugar Mills, Water Wheels, Shafting and Pulleys. The largest assortment of the above in the country, kept constantly on hand by WM. BURDON, 102 Front street, Brooklyn, N. Y. 1 26

Machine Belting, Steam Packing, ENGINE HOSE.—The superiority of these articles, manufactured of vulcanized rubber, is established. Every belt will be warranted superior to leather, at one-third less price. The Steam Packing is made in every variety, and warranted to stand 300 degs. of heat. The hose never needs oiling, and is warranted to stand any required pressure; together with all varieties of rubber adapted to mechanical purposes. Directions, prices, &c., can be obtained by mail or otherwise, at our warehouse. NEW YORK BELTING AND PACKING COMPANY. JOHN H. CHEEVER, Treasurer, No. 6 Dey street, New York. 1 13

Vail's Speedwell Iron Works, Morristown, N. J., manufacture Craig's Patent Double-acting Balance Valve Oscillating Steam Engines both stationary and portable, Knowles' Patent Muley, Portable, Gang and Re-sawing Mills, Sugar and Chinese Cane Mills and Sugar Pans, Grist Mills, Mill Irons, Rich's Water-wheels, Forgings and Castings. Orders for the above, and all descriptions of labor-saving machinery will receive prompt attention.
JOHN H. LIDGERWOOD & CO.,
1 12* No. 9 Gold street, New York.

Wrought Iron Pipe, Cast Iron PIPE, Galvanized Iron Pipe (a substitute for lead), Stop Cocks and Valves, Boilers and Boiler Flues. Pumps of all kinds sold at the lowest market rates by JAMES O. MORSE & CO., 76 John st., and 29, 31 and 33 Platt st., New York. 1 8*

To Iron Founders and Pipe Manufacturers.—I will sell the right to use and furnish the best Core Bars extant, for molding all kinds of Green Sand Cores on a hollow bar, for three-inch pipe and upwards. GEO. PEACOCK, Dalton, Ga.
1 6*

Lap-Welded Iron Boiler Tubes—Prosser's Patent.—Every article necessary to drill the tube-plates and set the tubes in the best manner.
THOS. PROSSER & SON, 28 Platt st., New York.
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Cary's Celebrated Direct Acting Self-Adjusting Rotary Force Pump, unequalled in the world for the purpose of raising and forcing water, or any other fluid. Manufactured and sold by
CARY & BRAINARD, Brockport, N. Y.
Also for sale by J. C. CARY, 240 Broadway, New York City. 1 11*

Peck's Patent Drop Press—ALL sizes, used for stamping copper or tin wore, silver ware ornaments, spoons, &c., and for forging gun work, lock work, carriage clips, &c. Also power and foot punching presses, and oval die chucks. Manufactured by MILO PECK & CO., 3 Whitney avenue, New Haven, Conn. 1 14*

Steam Whistles—IMPROVED PATterns for locomotive and stationary engines. A large assortment constantly on hand. Manufactured by HAYDEN, SANDERS & CO.,
1 5* 306 Pearl st., New York.

5,000 Agents Wanted—TO SELL four new inventions. Agents have made over $25,000 on one. Better than all other similar agencies. Send four stamps and get eighty pages particulars, gratis. EPHRAIM BROWN,
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Balloons for Sale—TWO NEW BALloons in complete order for ascensions. One of 1,000 lbs. power, the other 400 lbs. Apply to JOHN WISE, Lancaster, Pa. 1 4*eow

J. & Wm. W. Cumberland's IMPROVED Patent Metallic Oil, for machinery and burning. Warranted to last longer than sperm oil. Manufactured only by the New York Cumberland Metallic Oil Works, foot of East 24th st. Office, No. 205 Broadway, New York. Under the inventor's superintendence.
N. B.—See that our brand "New York Cumberland Metallic Oil Works, foot of East 24th street," is upon every package, however small. 1 10*

Guild & Garrison's Steam Pumps for all kinds of independent steam pumping, for sale at 55 and 57 First street, Williamsburgh, L. I., and 301 Pearl street, New York.
1 10* GUILD, GARRISON & CO.

Woodworth Planers—IRON FRAMES to plane 18 to 24 inches wide—at $90 to $110. For sale by S. C. HILLS, 12 Platt street New York. 1 26

Wellington Mills Emery—CONsumers will look for copyright label on each cask by whomsoever sold, and they will be sure of the best emery. Casks contain 200 pounds each. Testimonials of its superiority from Collins' Axe Co., and many others. GEO. H. GRAY & DANFORTH,
1 9* Boston, Mass.

These machines have no rival.—[Scientific American

Wheeler & Wilson's Sewing Machines, 343 Broadway, New York, received the highest premiums awarded in 1857 by the American Institute, New York; Maryland Institute, Baltimore; and at the Maine, Connecticut, Illinois, and Michigan State Fairs. Send for a circular containing editorial and scientific opinions, testimonials from persons of the highest social position, &c. 1 tf

Harrison's 20 and 30 Inch Grain Mills constantly on hand. Address New Haven Manufacturing Co., New Haven, Conn. 1 13

Iron Planers and Engine Lathes of all sizes, also Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c. on hand and finishing. These tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address "New Haven Manufacturing Co., New Haven, Conn." 1 13

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Science and Art.

Burglar's Alarm Clock and Lamp.

This invention consists of a novel and ingenious combination and arrangement of levers, rods, and other devices, in connection with the doors or windows of a building, and a bell or clock and lamp in any desired apartment therein, so as to give alarm on the entrance of burglars into a room or building, and to furnish an instantaneous light in the chamber or room in which the lamp is placed, when the parts are operated either by a person entering the room or building, or by an alarm clock set to awaken the occupants of the room at a given hour.

In our illustrations, Fig. 1 represents an alarm bell and self-lighting lamp in immediate connection with a door, and a window within a frame in the same, in order to show the manner of operating the parts by the raising of a window. Fig. 2 is a front elevation of an alarm clock, with a self-lighting lamp combined therewith; and Fig. 3 is a section of the lamp, and parts for operating the same.

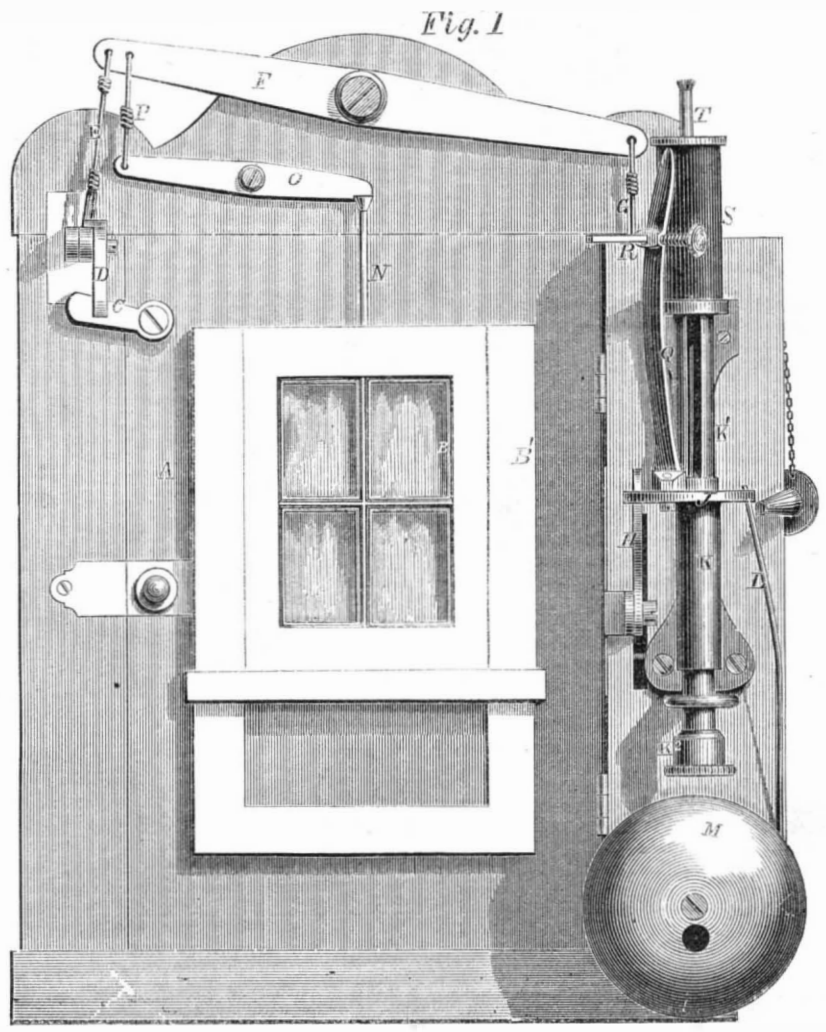
A is the door of an apartment, on the inner surface of which is arranged a window sash, B, and frame, B′, in order to illustrate the method of operating the alarm by both the opening of the door, A, and the raising of the window sash, B. C is an arm or button, secured to the inside of the door by a pin, upon which it can be moved, so as to operate upon the end of a right angled lever, D, hung inside the door frame or not, as desired. The opposite end of this lever, D, is attached by a wire rod, E, to an oscillating lever, F, suspended on a fulcrum above the door; or it may be arranged in any portion of the building, with the necessary rods and levers between its end and the lever, D, to give it the required movement. G is a rod attached to the end of the lever, F, and extending downward in the frame of the door, and attached at its lower end to the end of an elbow lever, H, turning on a fulcrum at its angular part, with its opposite curved end extending upward between the door frame and the horizontal segmental flange, J, on the upper end of a tube, K, surrounding another vertical tube, K′, in which is formed a vertical slit, which tube K′, is secured to projections on the inside of the door frame, and is provided with a screw cap at its lower end. The upper end of an upright rod, L, is inserted in a notch in the edge of a segmental flange plate, J, which is provided with a hammer at its lower end, and connected to the necessary alarm clock movements for operating the same, arranged between the door frame and a bell, M.

The window sash frame, B, is connected to the end of an oscillating lever, O, by a rod, N, the opposite end of which lever is connected by a rod, P, to the oscillating lever, F.

To the upper surface of the flange plate, J, is attached a spring bar, Q, to near the upper end of which is attached by a set screw, R, a horizontal match passing through an opening in the said spring bar, and having its end on which the chemical igniting substance is placed, in contact with the emery paper surrounding a vertical lamp, S, secured on top of the tube, K′, and having a wick tube, T, at its upper end. The lower end of the spring bar, Q, projects through the slot in the tube, K′, and rests on a spiral spring, *s*, arranged within the same, which spring is depressed by pressing the flange, segmental plate, J, and tube, K, and their attachments to the lower part of the tube, K′, and retained in its compressed state by turning the segmental plate, J, and tube, N, slightly around, so as to bring the lower projecting end of the spring bar, Q, in a horizontal slot in the tube, K′, extending at right angles from the upright slot in the same. When the spring is thus compressed, and the several parts in the positions represented, the spring bar, Q, is sprung back, to press the igniting end of the match against the emery paper, with a sufficient degree of force to produce the required friction to inflame the same. The opening of the door, A, or raising of the window, B, will cause one end of the oscillating lever, F, to be depressed, and the opposite end to be raised, and the segmental plate, S, and tube, K, to be turned by the action of the elbow lever, H, until the lower projecting end of the spring bar is detached from the horizontal slot in the tube, K′. The spring bar, Q, or match holder is then carried upward by the spiral spring, *s*, with

MATTHEWMAN'S BURGLARS ALARM CLOCK AND LAMP.

Fig. 1



the required degree of force to ignite the match by its rubbing over the surface of the emery paper, to light the lamp, and simultaneously with this movement, the rod is detached from the detent or notch in the edge of the segmental flange plate, J, and the previously wound-up clock alarm rings an alarm to awaken the occupants of the room. In the same manner the clock represented in Fig. 2, can be set to ring the alarm at a given hour, in which event the lamp will be lighted by the movements of the before described parts, through the action of the hammer, W, of the clock upon the bent end, V, of a bar, U, connected to the flange plate, I. The turn given to the spring bar or match holder, Q, to release it from the slot in the tube, K′, when the match is in contact with the emery paper

Fig. 2

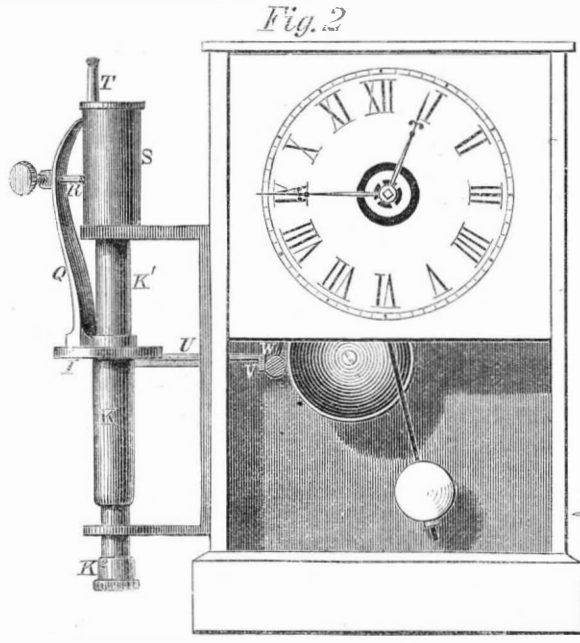
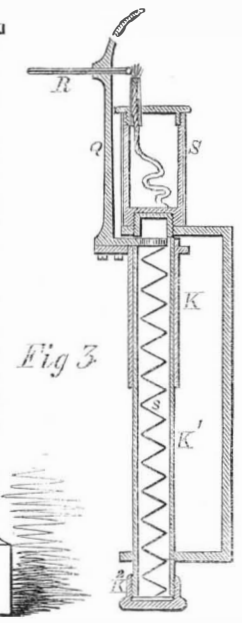


Fig 3



on the lamp cylinder, S, gives that cylinder a rotating movement equal to the movement of the holder, so that a fresh surface of the cylinder is presented at each operation to be operated upon by the match, and the difficulty which a stationary surface would present, of having the same worn smooth, or filled up with the gum from the match, is avoided. The lighting apparatus and alarm can be arranged in any convenient position in the room, and be operated by wires leading from the exposed doors or windows liable to be forced and entered by burglars, and when the lighting apparatus is operated by the clock as stated, a person can have a light when he is awoke by the ringing of the alarm.

The patent for this highly ingenious contrivance was issued to John Matthewman, of New Haven, Conn., on the 6th of July, 1858. Any further information can be obtained by addressing him as above.

Wood Embossing.—A newly invented process for so softening wood that it may be pressed into iron molds, and receive permanent and sharp impressions in bas-relief, has, under the name of Xyloplasty, attracted much notice in Paris. The wood is softened by steam, and imbued with certain ingredients, which impart to it sufficient ductility to enable it to receive bas-relief impressions from four to five millimetres in hight. For medallions, bosses, &c., mastic is forced into the hollows, so that all tendency in the compressed wood to split or open is completely overcome. For bookbinding purposes much seems to be expected from this process, as it is applicable to the scented or odoriferous woods—cedar, teak, cypress, rosewood, &c.—which are *vermifuge* in their nature; so that through their covers, books will in future be protected from the ravages of insects.

Novel Application of Artillery.—A road contractor in France near the Pyrenees, having lately found the process of blasting an overhanging rock rather difficult, and a mortar battery of the 10th regiment happening to be passing along, he telegraphed to Paris for leave to open fire upon a crag seventy yards above the road, over which it impended. A few rounds of ten-inch shell soon brought the entire mass to fragments. About ten minutes served for the operation.

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